

Permit Fact Sheet

General Information

Permit Number:	WI-0002160-08-0
Permittee Name:	SENECA FOODS CORPORATION – Clyman Plant
Address:	640 CAUGHLIN RD
City/State/Zip:	CLYMAN WI 53016
Discharge Location:	SE ¼ of the NE ¼ of Section 28 which is in the Sinissippi Lake–Rock River Watershed (UR08) in the Upper Rock River Basin
Receiving Water:	Clyman Creek of the Sinissippi Lake–Rock River Watershed (UR08) in the Upper Rock River Basin. Groundwaters of the State via Land Treatment and Land Application.
Stream Flow (Q _{7,10}):	0.0 cfs
Stream Classification:	Warm water sport fish community, non-public water supply.

Facility Description

Seneca Foods Corporation (Seneca) operates a vegetable processing plant in the Village of Clyman. This facility has been formerly known as Aunt Nellies Farm Kitchen and as the Pillsbury Company. Seneca uses glass containers as well as tin cans to hold their products. Vegetables normally include cabbage, beets, onions and potatoes, among others. Some vegetables go through the pickling process. Vegetables are processed on a seasonal basis, usually late June through mid-November. During the non-growing season, vegetables are processed into salads. Other foods, such as gravies, fruit cups, and tomato sauces are produced. Seneca can operate on a 24-hour basis, especially during the peak growing season. Wastewater is generated at an average estimated volume of 300,000 gallons with a peak of 800,000 gallons per day from food processing. Can cooling water contributes on average 100,000 gallons per day with peak of 300,000 to 350,000 gallons per day. Can cooling water is directly discharged to the headwaters of Clyman Creek. Seneca was unable to meet temperature limits at their current discharge point just south of Caughlin road. Cooling water will now be discharged to Lagoons 1, 2, and 3 in series. Seneca anticipates discharging from the Lagoon 3 as water levels and temperature limits dictate. The new outfall location is to Clyman Creek about 4,150 feet south of Caughlin Road. This is a modified outfall, so Seneca isn't certain if discharge will occur 10 months per year, or less frequently than that.

At the present time, wastewater can be stored in Tank 1, Tank 2, Lagoon 4 and Lagoon 5. In addition, there is an asphalt-lined pad that holds the vegetable solids until they can be distributed to area livestock farmers or land applied. Any leachate generated by the stored vegetables is stored in an a synthetically lined pond before being land spread.

Process wastewater is generated from washing and cooking vegetables and preparing other food products on a year-round basis with highest flows occurring during the peak season (late summer and fall). Normally process wastewater goes to Tank 1 and further distributed to Lagoon 4 & 5, Tank 2 or sprayed. Wastewaters are spray irrigated on approved, dedicated sites.

There are currently six spray irrigation fields with over 272 approved acres receiving wastewater. It is estimated that about 69 million gallons were spray irrigated in 2017. Groundwater monitoring wells have been installed around the spray fields and ensure groundwater limits are met. Fields are seeded with a grass mixture which is removed 2-3 times annually. During the frozen months when spray irrigation is not occurring, process wastewater is directed to Lagoon 4 or Lagoon 5 to be held over the winter. Other waters such as can cooling water are also directed to Lagoon 4 or Lagoon 5 during the winter months.

At the time of the last permit issuance Seneca added the “Vacek” property which was divided into eleven fields and approximately 120 additional acres that can receive wastewater. Installation of groundwater monitoring wells associated with these fields occurred in 2015.

Vegetable by-product liquids are normally land applied on neighboring farm fields. The liquids are stored in a synthetically lined pond prior to being land applied. Currently 14 fields (over 200 acres) have received Department approval. The fields meet the locational requirements of ch. NR 214, Wis. Adm. Code. Loading limits are based on the nitrogen needs of the crop. In 2015 about 120,000 gallons were land spread.

Vegetable solids can be land applied, but normally are not, to any great extent. In 2019, about 83 tons of solids were land applied. The asphalt-lined storage pad has been approved to hold about 22,000 tons of solids. Solids generated at Seneca’s Mayville facility can be co-mingled with the ones at Seneca Clyman. Area livestock owners receive most of the solids for fresh feeding operations.

Mud Ponds 1 and 2 are used in series. Water used to rinse raw vegetables as well as stormwater runoff from parking areas are stored until they can be spray irrigated. Solids accumulating in the bottom of both ponds are removed and used as top soil material. The lining material of both ponds is unknown. In 2019 it is estimated that just over nine million gallons were discharged from the Mud Ponds.

As a result of a 1997 evaluation, it was determined that the southern portion of Lagoon 4 could no longer be used to store wastewater. The operational portion of Lagoon 4 was separated. The southern portion was known as Lagoon 5. Seneca upgraded and expanded wastewater Lagoon 5. The upgraded Lagoon 5 is located approximately 4,700 feet south of the existing production facility. Seneca Foods transports vegetable processing wastewater from the production facility to Lagoon 5 for storage to be spray irrigated or land applied. The project used the eastern portion of the existing Lagoon 5 and expanded the lagoon to the east on Seneca Foods’ property. The remaining western portion of Lagoon 5 was converted into a temporary sludge storage basin and later abandoned. The upgraded lagoon has a synthetic liner is designed with a groundwater underdrain system. The collected groundwater and any exfiltration losses are conveyed by gravity to Lagoon 4.

In 2010, a reverse osmosis system with brine recovery was installed. Backwash waters are mixed with process waters. Prior to the 2016 pack, Seneca installed green sand filters to pretreat water prior to the RO, instead of softening this water. The purpose was for chloride reduction from water softening. No other process wastewater treatment changes have occurred.

Lagoons 1, 2, and 3 were evaluated during the current permit and the facility received approval to redirect the can cooling water to these lagoons. Seneca plans to use the lagoons to lower the temperature of the can cooling water prior to discharge. If necessary, the facility plans to hold the can cooling water in the lagoons and only discharge from them when temperature limits are met. There is a groundwater monitoring system around the lagoons to evaluate groundwater quality.

Alan Hopfensperger determined after a desktop review of operations that the facility is in substantial compliance with their current permit. A Substantial Compliance Determination form was completed 5/29/2020.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)

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Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
001	Effluent – 2019 packing season Average - 0.09 MGD High - 0.33MGD	Representative samples of the can cooling water. Limitations and monitoring effective when Outfall is active. All sampling and monitoring shall occur at the discharge pipe after the Can Cooling Water System (which consists of interconnected Lagoons 1, 2 and 3), and prior to discharge to Clyman Creek.
	Land Application outfalls	
006		Landspreading of vegetable by-product solids. The asphalt-lined storage pad is approved to hold about 13,000 tons of solids and is located in the NEQ of the NEQ of Section 33, T10N, R15E. Solids may include peelings, trimmings and sub-standard vegetables. In addition sweet corn solids can also be stored on this pad.
007		Landspreading of by-product wastewaters including sweet corn silage leachate. The holding pond has the capacity of about 130,000 gallons and is located in the NEQ of the NEQ of Section 33, T10N, R15E.
013		Landspreading of wastewaters stored in Mud Ponds 1 and/or 2. Land application may occur when spray irrigation cannot.
015		Landspreading of wastewaters stored in Tanks 1 and/or 2. Land application may occur when spray irrigation cannot.
019		Landspreading of wastewater stored in interconnected lagoons 4 or 5. This wastewater may be removed as a part of a desludging project and may be land applied.
	Land Treatment Outfalls	
020		Aunt Nellie's Farm Kitchen Spray Irrigation site is approved for 34 acres and is located at E1/2 of SEQ of Section 28, T10N, R15E.
021		Hasse Field Spray Irrigation Site is approved for 11.9 acres and is located at NWQ of NWQ of Section 34, T10N, R15E
022		Krueziger Field Spray Irrigation Site is approved for 30.7 acres and is located at SEQ of Section 34, T10N, R15E
023		Seneca Field #15 Spray Irrigation Site is approved for 15 acres and is located at SEQ of NEQ of Section 33, T10N, R15E
024		Stock Field Spray Irrigation Site is approved for 60.5 acres and is located at W1/2 of Section 34, T10N, R15E
027		Vacek Field 2 spray irrigation site is approved for 13.4 acres and is located in the SWQ of SEQ of Sec 27, T10N, R15E
030		Vacek Field 4a spray irrigation site is approved for 5.1 acres and is located in the NWQ of SEQ of Sec 27, T10N, R15E

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
031		Vacek Field 4b spray irrigation site is approved for 14 acres and is located in the NEQ of SWQ of Sec 27, T10N, R15E
032		Vacek Field 5 spray irrigation site is approved for 16.1 acres and is located in the NEQ of SWQ of Sec 27, T10N, R15E
033		Vacek Field 6 spray irrigation site is approved for 16 acres and is located in the NWQ of SWQ of Sec 27, T10N, R15E
041	Land Application Outfall	Landspreading of solids stored in Lagoons 4 or 5. These solids may be removed as a part of a desludging project and may be land applied.
042	Land Application Outfall	Landspreading of solids stored in Tanks 1 and/or 2. Solids may need to be removed on a periodic basis and may be land applied.
	Land Treatment Outfalls	
051		Vacek Fields 1a & 1b spray irrigation site is approved for 18.4 acres and is located in the SWQ of SEQ of Sec 27, T10N, R15E
052		Vacek Fields 3a & 3b spray irrigation site is approved for 19.3 acres and is located in the SWQ of SEQ and SEQ of SWQ of Sec 27, T10N, R15E
053		Vacek Fields 7a & 7b spray irrigation site is approved for 18.0 acres and is located in the SWQ of SWQ of Sec 27, T10N, R15E
060	Land Application Outfall	Landspreading of can cooling water treated in interconnected lagoons 1, 2, and 3. Wastewaters may need to be removed prior to desludging activities and may be land applied.
061	Land Application Outfall	Landspreading of solids stored in interconnected lagoons 1, 2 and 3. If the lagoons are desludged, solids may be land applied.
	In- Plant Sample Points	
101		Representative samples of mixed process wastewater discharged to Tank 1. Process wastewater may include waters from the washing and blanching of vegetables, including can-line and other clean-up wash waters. Monitoring is required while Tank 1 receives wastewater, usually the summer months.
102		Discharge from Mud Pond 1 to Spray Irrigation: Waters used to wash raw vegetables (outside) are directed to Mud Pond 2. Mud Pond 2 drains to the interconnected Mud Pond 1. Mud Pond 1 is located NEQ of the SEQ of Section 28, T10N R15E.
103		Discharge from Lagoon 4 to Spray Irrigation: Lagoon 4 has a capacity of about 20 million gallons. It is located in the NEQ of Section 33, T10N, R15E. Summer and winter processing waters are stored in Lagoon 4.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
104		Discharge from Tank 1 to Spray Irrigation: Tank 1 is made of steel and glass (Slurrystore) and has the approximate capacity of over 141,000 gallons. It is located in the SEQ of the NEQ, Section 33, T10N, R15E. Summer processing water is directed here. From Tank 1, process water can be directed to Lagoon 4 and Tank 2, as well as be spray irrigated directly.
105		Discharge from Tank 2 to Spray Irrigation: Tank 2 is made of steel and glass (Slurrystore) and has the approximate capacity of a little over 150,000 gallons. From Tank 2, process wastewater is spray irrigated on the Krueziger irrigation fields.
106	Outfall Inactive	Discharge from Lagoon 1 to Spray Irrigation: This lagoon has been inactive and is believed to be earthen lined. The sample point has been added if Seneca decides to use spray irrigation to dewater the lagoon. It is located in the NEQ of Section 33, T10N, R15E.
107	Outfall Inactive	Discharge from Lagoon 2 to Spray Irrigation. This lagoon has been inactive and is believed to be earthen lined. The sample point has been added if Seneca decides to use spray irrigation to dewater the lagoon. It is located in the NEQ of Section 33, T10N, R15E.
108		Discharge pumped from Lagoon 3 to Spray Irrigation: Interconnected Lagoons 1, 2 and 3 are used to treat wastewater from the can cooling water system. These lagoons are earthen lined. The sample point will be used for spray irrigation to dewater the interconnected lagoons. Lagoon 3 is located in the NEQ of Section 33, T10N, R15E.
109		Discharge from Lagoon 5 to Spray Irrigation: Lagoon 5 is a synthetically lined wastewater lagoon constructed in late-2017. It has a capacity of about 20.5 million gallons and is located in the NEQ of Section 33, T10N, R15E. Summer and winter processing waters are stored in Lagoon 5.

Sample Point Designation For Groundwater Monitoring Systems			
System	Sample Pt Number	Well Name	Comments
ANFK	806	MW-6 (806)	
	807	MW-7 (807)	
	808	MW-8 (808)	
	809	MW-9 (809)	

Sample Point Designation For Groundwater Monitoring Systems			
System	Sample Pt Number	Well Name	Comments
	810	MW-10 (810)	
	851	MW 46 ANFC	
Haase Fields	824	MW-35 HAASE FIELD	
	825	MW-36 HAASE FIELD	
Krueziger Fields	827	MW-38 KRUEZIGER FIELD	
	828	MW-39 KRUEZIGER FIELD	
	829	MW-40 KRUEZIGER FIELD	
	830	MW-41 KRUEZIGER FIELD	
	831	MW-42 KRUEZIGER FIELD	
	832	MW-43 KRUEZIGER FIELD	
	833	MW-44 KRUEZIGER FIELD	
Lagoon 4	805	MW-5 (LAGOON 4)	
	835	MW-28 (BCKGRND) LAGOON 4	
	836	MW-29A (LAGOON 4)	
	837	MW-29B (LAGOON 4)	
	838	MW-30 (LAGOON 4)	
	839	MW-30B (LAGOON 4)	
	840	MW-31 (LAGOON 4)	
Lagoons 1, 2, 3	841	MW-21A (BKGRND) LAGOON 1,2 & 3	
	842	MW-21B (BKGRND) LAGOON 1,2 & 3	
	843	MW-11 LAGOONS 1, 2 & 3	
	844	MW-23A LAGOONS 1, 2 & 3	
	845	MW-23B LAGOONS 1, 2 & 3	
	846	MW-25A LAGOONS 1, 2 & 3	
	847	MW-25B LAGOONS 1, 2 & 3	
	848	MW-27A LAGOONS 1, 2 & 3	
	849	MW-27B LAGOONS 1, 2 & 3	
Seneca field #15	801	MW-1 (BKG) FIELD #15	

Sample Point Designation For Groundwater Monitoring Systems			
System	Sample Pt Number	Well Name	Comments
	811	MW-15A FIELD #15	
	850	MW-45 Seneca Field #15	
Stock Fields	813	MW-16A (PIEZ) STOCK FIELD	
	815	MW-16C STOCK FIELD	
	816	MW-17 STOCK FIELD	
	817	MW-18B STOCK FIELD	
	818	MW-19 STOCK FIELD	
	819	MW-20A (PIEZ) STOCK FIELD	
	820	MW-20B STOCK FIELD	
	822	MW-33 STOCK FIELD	
	826	MW-37 STOCK FIELD	
Vacek Field	852	MW-47 (VACEK)	
	853	MW-48 (VACEK)	
	854	MW-49 (VACEK)	
	855	MW-50 (VACEK)	
	856	MW-51 (VACEK)	
	857	MW-52 (VACEK)	
	858	MW-53 (VACEK)	
	859	MW-54 (VACEK)	
	860	MW-55 (VACEK)	

1 Inplant - Proposed Monitoring and Limitations

Sample Point Number: 101- Process WW to Tank 1

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
BOD5, Total		mg/L	Weekly	24-Hr Flow Prop Comp	
Chloride		mg/L	Weekly	24-Hr Flow Prop Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Nitrite + Nitrate Total		mg/L	Weekly	24-Hr Flow Prop Comp	
Nitrogen, Total Kjeldahl		mg/L	Weekly	24-Hr Flow Prop Comp	

Changes from Previous Permit:

No Changes

Explanation of Limits and Monitoring Requirements

The in-plant sample point is included to ease monitoring and reporting requirements. The quality of the process wastewaters will be defined through the sampling results. The loadings to the spray irrigation fields will be calculated based on the effluent quality data from the in-plant sample point and the hydraulic loading for the individual field.

Sample Point Number: 102- Discharge from Mud Pond to SI

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Measure	
Chloride		mg/L	Weekly	Grab Comp	
Nitrogen, Total Kjeldahl		mg/L	Weekly	Grab Comp	

Changes from Previous Permit:

No Changes

Explanation of Limits and Monitoring Requirements

The in-plant sample point is included to ease monitoring and reporting requirements. The quality of the raw vegetable rinse wastewaters will be defined through these sampling results. The loadings to the spray irrigation fields will be calculated based on the effluent quality data from the in-plant sample point and the hydraulic loading for the individual field.

Sample Point Number: 103- Discharge from Lagoon 4 to SI

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Measure	
Chloride		mg/L	Weekly	Grab Comp	
Nitrogen, Nitrite +		mg/L	Weekly	Grab Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrate Total					
Nitrogen, Total Kjeldahl		mg/L	Weekly	Grab Comp	

Changes from Previous Permit:

No Changes

Explanation of Limits and Monitoring Requirements

The in-plant sample point is included to ease monitoring and reporting requirements. The quality of the wastewaters will be defined through the sampling results. The loadings to the spray irrigation fields will be calculated based on the effluent quality data from the in-plant sample point and the hydraulic loading for the individual field.

Sample Point Number: 104- Discharge from Tank 1 to SI

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Measure	

Changes from Previous Permit:

No Changes

Explanation of Limits and Monitoring Requirements

Summer processing water is directed to Tank 1. The monitoring of the process wastewater for BOD, nitrate+nitrite, TKN and chloride is assigned at in-plant sample point 101. Flow monitoring at this point is solely to track the source and volume of the discharge to the individual spray irrigation fields. From Tank 1, process water can be directed to Lagoon 4, Tank 2, and directly to spray irrigation fields.

Sample Point Number: 105- Discharge from Tank 2 to SI

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Measure	

Changes from Previous Permit:

No changes

Explanation of Limits and Monitoring Requirements

The monitoring of the process wastewater for BOD, nitrate+nitrite, TKN and chloride is assigned at in-plant sample point 101. Flow monitoring at this point is solely to track the source and volume of the discharge to the individual spray irrigation fields.

Sample Point Number: 108- Discharge from Lagoon 3 to SI

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Measure	
Chloride		mg/L	3/Week	Grab Comp	
Nitrogen, Total Kjeldahl		mg/L	3/Week	Grab Comp	

Changes from Previous Permit:

No Changes

Explanation of Limits and Monitoring Requirements

The in-plant sample point is included to ease monitoring and reporting requirements. The quality of the wastewaters will be defined through the sampling results. The loadings to the spray irrigation fields will be calculated based on the effluent quality data from the in-plant sample point and the hydraulic loading for the individual field.

The facility will be using lagoons 1, 2 and 3 to lower the temperature of the can cooling water prior to discharge to Clyman Creek. Now that lagoons 1, 2 & 3 have been repurposed to treat can cooling water the main discharge from the interconnected lagoons will be a surface water discharge from lagoon 3. The in-plant sample point for lagoon 3 is being retained in the permit to track any spray irrigation of can cooling water from the lagoon.

Sample Point Number: 109- Discharge from Lagoon 5 to SI

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Measure	
Chloride		mg/L	Weekly	Grab Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Weekly	Grab Comp	
Nitrogen, Total Kjeldahl		mg/L	Weekly	Grab Comp	

Changes from Previous Permit:

Monitoring is added for nitrate + nitrite nitrogen.

Explanation of Limits and Monitoring Requirements

Lagoon 5 was reconstructed during the permit term and is now used to store process wastewater prior to spray irrigation. The nitrate + nitrite nitrogen monitoring was added to track any leakage from the lagoon to groundwater. The in-plant

sample point is included to ease monitoring and reporting requirements. The quality of the wastewaters will be defined through the sampling results. The loadings to the spray irrigation fields will be calculated based on the in-plant sample point and the hydraulic loading for the individual field.

2 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 001- Discharge to Clyman Creek

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Daily Max	20 mg/L	Weekly	24-Hr Flow Prop Comp	
BOD5, Total	Monthly Avg	10 mg/L	Weekly	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	2/Month	24-Hr Flow Prop Comp	
pH Field	Daily Min	6.0 su	Weekly	Grab	
pH Field	Daily Max	9.0 su	Weekly	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	Weekly	Grab	
Chlorine, Total Residual	Daily Max	19 ug/L	Weekly	Grab	
Chlorine, Total Residual	Weekly Avg	7.3 ug/L	Weekly	Grab	
Chlorine, Total Residual	Monthly Avg	7.3 ug/L	Weekly	Grab	
Temperature Maximum		deg F	3/Week	Measure	See Table 2 for effluent limits
Phosphorus, Total		1.6 mg/L	Weekly	24-Hr Flow Prop Comp	Interim limit, see phosphorus compliance schedule for final limits effective 9/30/2029.
Phosphorus, Total		lbs/day	Weekly	Calculated	Final effluent limits effective per compliance schedule
Arsenic, Total Recoverable	Daily Max	13 ug/L	2/Month	24-Hr Flow Prop Comp	Final effluent limits effective per compliance schedule
Arsenic, Total	Monthly Avg	13 ug/L	2/Month	24-Hr Flow	Final effluent limits effective per compliance

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Recoverable				Prop Comp	schedule
Arsenic, Total Recoverable	Monthly Avg	0.026 lbs/day	2/Month	Calculated	Final effluent limits effective per compliance schedule
Copper, Total Recoverable	Daily Max	ug/L	2/Month	24-Hr Flow Prop Comp	Final effluent limits effective per compliance schedule
Copper, Total Recoverable	Weekly Avg	ug/L	2/Month	24-Hr Flow Prop Comp	Final effluent limits effective per compliance schedule
Copper, Total Recoverable	Monthly Avg	ug/L	2/Month	24-Hr Flow Prop Comp	Final effluent limits effective per compliance schedule
Copper, Total Recoverable	Daily Max	lbs/day	2/Month	Calculated	Final effluent limits effective per compliance schedule
Copper, Total Recoverable	Weekly Avg	lbs/day	2/Month	Calculated	Final effluent limits effective per compliance schedule
Zinc, Total Recoverable		ug/L	Monthly	24-Hr Flow Prop Comp	
Hardness, Total as CaCO ₃		mg/L	2/Month	24-Hr Comp	Sampling shall be conducted on the same day metals sampling occurs.
Nitrogen, Ammonia (NH ₃ -N) Total		mg/L	Weekly	24-Hr Flow Prop Comp	Monitoring is required in 2023
Chloride		mg/L	Weekly	24-Hr Flow Prop Comp	Monitoring is required in 2023
Acute WET	Daily Max	TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	Final effluent limits effective per compliance schedule
Chronic WET	Monthly Avg	TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Final effluent limits effective per compliance schedule

Changes from Previous Permit

Limits for residual chlorine revised. Monitoring and limitations for arsenic added. Limitations added to the copper monitoring requirements. Copper monitoring now required through the permit term. Added Acute and Chronic WET testing limits that are effective per a compliance schedule. Primary Control Water changed to synthetic (standard)

laboratory water. Zinc limitations are removed from the permit. Phosphorus limitations are added that are effective per a compliance schedule. TSS sampling required during the full permit term.

Explanation of Limits and Monitoring Requirements

Water Quality Based Limits and WET Requirements and Disinfection (if applicable)

Refer to the WQBEL memo for the detailed calculations, prepared by the Water Quality Bureau dated June 9, 2020 used for this issuance.

BOD, dissolved oxygen and residual chlorine

Limits are continued at the levels in the current permit. There was a change in expression of limits per the 2016 revisions to NR 205.065. In accordance with the federal regulation 40 CFR 122.45(d), limits in this permit are to be expressed as daily maximum and monthly average limits whenever practicable.

pH

The pH limits are based on chs. NR 102 Wis. Adm. Code pH standards.

Thermal - Requirements for Temperature are included in NR 102 Subchapter II Water Quality Standards for Temperature and NR 106 Subchapter V Effluent Limitations for Temperature. Thermal discharges must meet the Public Health criterion of 120 degrees F and the Fish & Aquatic Life criteria which are established to protect aquatic communities from lethal and sub-lethal thermal effects. Limits became effective 1/1/2020 and remain in effect.

Phosphorus - Phosphorus requirements are based on the Phosphorus Rules that became effective 12/1/2010 as detailed in NR 102 Water Quality Standards and NR 217 Effluent Standards and Limitations for Phosphorus. Chapter NR 217 of the Wis. Adm. Code addresses point source dischargers of phosphorus to surface waters. NR 217 also specifies WQBELs (water quality based effluent limits) for discharges of phosphorus to surface waters of the state from privately owned wastewater facilities. WQBELs for phosphorus are needed whenever the discharge contains phosphorus at concentrations or loadings that will cause or contribute to an exceedance of the water quality standards.

For the reasons explained in the April 30, 2012 paper entitled 'Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin', WDNR has determined that it is impracticable to express the phosphorus WQBEL for the permittee as a maximum daily, weekly or monthly values. The final effluent limit for phosphorus is expressed as a six-month average. It is also expressed as a monthly average equal to three times the derived WQBEL. This final effluent limit was derived from and complies with the applicable water quality criterion.

A limit of 0.075 mg/L as a six month average is recommended along with a monthly average limit of 0.225 mg/L, based on s. NR 217.14(2). A six month average limit should be averaged during the months of May – October and November – April. Mass limits are also proposed (see limits below). The facility does not currently treat for phosphorus and cannot meet proposed limits. Since the permittee is unable to immediately achieve the proposed WQBELs based on existing operation, a schedule of compliance is appropriate and necessary pursuant to s. NR 217.17, Wis. Adm. Code. A lengthy compliance schedule has been included because the permittee will need a significant amount of time to meet the stringent phosphorus water quality based effluent limits (WQBEL) contained in the permit. The overall compliance schedule takes place over a 9 year time period. Please see compliance schedule specifics in the Schedules section. Because a phosphorus compliance schedule was granted, an interim phosphorus limit was also calculated based on current effluent quality to prevent backsliding during the term of the permit. This interim limit of 1.6 mg/L as a monthly average is included in the permit and reflects the 4-day P₉₉ concentration of 1.6 mg/L from the data collected in the past three years (2015-2018).

Metals and Hardness

Based on a comparison of the testing submitted with the application and calculated effluent limitations, effluent limitations are required for arsenic. There was only one data point for arsenic to compare to the calculated limit, so if

additional testing is done with similar results a p99 of the data may show there is no potential to exceed the limit. A compliance schedule is included so data can be collected and an evaluation done before limits are effective.

Based on comparison of the effluent data and calculated effluent limits, effluent limitations are required for copper. However, the copper data points are few and vary widely, so in this case also additional data is needed prior to limits going into effect.

Hardness monitoring is also recommended because of the relationship between hardness and daily maximum limits based on acute toxicity criteria. Sampling for hardness should occur on the same days that metals sampling occurs.

Ammonia, Zinc & Chloride – When the representative data is compared to the calculated limits, the data shows there is no reasonable potential for the permittee to exceed the calculated limits. Therefore, no limits are included in the proposed permit. Monitoring is only included in the permit to confirm for the next permit reissuance that limits are not necessary for ammonia, Zinc and chloride.

Industrial Effluent Limits – There was a change in expression of limits per the 2016 revisions to NR 205.065. In accordance with the federal regulation 40 CFR 122.45(d), limits in this permit are to be expressed as daily maximum and monthly average limits whenever practicable. Minor additions have been made to arsenic, copper and chlorine limits.

Whole Effluent Toxicity - Whole effluent toxicity (WET) testing requirements and limits (if applicable) are determined in accordance with ss. NR 106.08 and NR 106.09 Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at <http://dnr.wi.gov/topic/wastewater/wet.html>) WET testing failures have shown toxicity in Chronic tests. At this point the facility is required to perform a TRE to determine the sources of toxicity in their discharge and remove them. Acute and Chronic WET sampling is not required until the TRE is complete (see compliance schedule for dates).

The Primary Control Water was previously collected downstream of outfall 001 and the downstream storm sewer which caused the sample of receiving water to contain a portion of effluent discharge. There are two stormwater sewers discharging to the creek, one upstream of the original 001 outfall and one downstream from that outfall. The location for the outfall in this permit issuance is moved downstream to the discharge point from Lagoon 3. The receiving water has little to no flow upstream of both storm sewer discharges so it is inappropriate to use the Clyman Creek water upstream of the new outfall location since it would be comprised mostly of stormwater.

According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0. Calculations demonstrate that reasonable potential is shown for acute and chronic WET using the procedures in s. NR 106.08(6) and representative data from 2015 through 2019. Limits of 1.0 are included for acute and chronic tests that are effective per the compliance schedule.

Categorical Limits

No categorical limits are used because process wastewaters go to land treatment and not the surface water.

3 Land Treatment – Proposed Monitoring and Limitations

Sample Point Number: 020- ANFK Field SI Site; 021- Haase Field SI Site; 022- Krueziger Field SI Site; 023- Seneca Field #15 SI Site

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	5,600 gal/ac/day	Monthly	Calculated	This limit applies from May 1 through October 31.
Hydraulic Application Rate	Monthly Avg	3,800 gal/ac/day	Monthly	Calculated	This limit applies in April and November.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Calculated	This limit applies December through March.
Nitrogen, Max Applied On Any Zone		See below lbs/ac/yr	Annual	Total Annual	
Nitrogen, Total		lbs/ac/yr	Annual	Total Annual	
Chloride		lbs/ac/yr	Annual	Total Annual	

Changes from Previous Permit:

At the request of the permittee nitrogen loading limits were increased to 600 lb/ac/yr for ANFK (020), Krueziger (022) and Seneca #15 (030) fields because the requirement for the change of the previous year's groundwater monitoring data being in compliance with all preventative action limits and enforcement standards was met at these sites.

Explanation of Limits and Monitoring Requirements

The proposed permit requires Seneca to monitor and report total annual nitrogen loadings to the spray irrigation fields. The nitrogen limits have the potential to change annually without changes to the permit based on groundwater monitoring results and the language in Section 3.3.3 of the permit. The nitrogen loading language has been updated to use ammonia nitrogen and nitrite + nitrate nitrogen as the parameters to determine if increased discharge limits apply. The limit requirements are based on 2013 permit language agreed upon between industry groups and the department until completion of the UW-Madison denitrification research study. The department may revise its approach to nitrogen loading at industrial spray irrigation facilities based on research results and discussions with industry groups. Requirements for land treatment of industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code. The Department may require further actions to comply with groundwater standard exceedances as specified in s. NR 140.24 and 140.26, Wis. Adm. Code.

Nitrogen loading limits were unchanged for the Haase (021) field at 400 lb/ac/yr. Hydraulic application rate limits are the same as those in the current permit for all fields.

Sample Point Number: 024- Stock Field SI Site

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	5,600 gal/ac/day	Monthly	Calculated	This limit applies from May 1 through October 31.
Hydraulic Application Rate	Monthly Avg	3,800 gal/ac/day	Monthly	Calculated	This limit applies in April and November.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Calculated	This limit applies December through March.
Nitrogen, Max Applied On Any Zone		300 lbs/ac/yr	Annual	Total Annual	
Nitrogen, Total		lbs/ac/yr	Annual	Total Annual	
Chloride		lbs/ac/yr	Annual	Total Annual	

Changes from Previous Permit:

Nitrogen loading for the field was increased to 300 lbs/ac/yr to match the crop needs of the reed canary cover crop.

Explanation of Limits and Monitoring Requirements

The proposed permit requires Seneca to monitor and report total annual nitrogen loadings to the spray irrigation fields. The nitrogen limits have the potential to change annually without changes to the permit based on groundwater monitoring results and the language in Section 3.3.3 of the permit. The language has been updated to use ammonia nitrogen and nitrite + nitrate nitrogen as the parameters to determine if increased discharge limits apply. The limit requirements are based on 2013 permit language agreed upon between industry groups and the department until completion of the UW-Madison denitrification research study. The department may revise its approach to nitrogen loading at industrial spray irrigation facilities based on research results and discussions with industry groups. Requirements for land treatment of industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code. The Department may require further actions to comply with groundwater standard exceedances as specified in s. NR 140.24 and 140.26, Wis. Adm. Code.

Nitrogen loading limit for the field was increased to 300 lbs/ac/yr to match the crop needs of the reed canary cover crop. Hydraulic application rate limits are the same as those in the current permit these fields.

Sample Point Number: 027- Vacek Field 2; 030- Vacek Field 4a; 032- Vacek Field 5; 033- Vacek Field 6

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	5,600 gal/ac/day	Monthly	Calculated	This limit applies from June 1 through October 31.
Hydraulic Application Rate	Monthly Avg	3,800 gal/ac/day	Monthly	Calculated	This limit applies in May and November.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Calculated	This limit applies December through April.
Nitrogen, Max Applied On Any Zone		300 lbs/ac/yr	Annual	Total Annual	
Nitrogen, Total		lbs/ac/yr	Annual	Total Annual	
Chloride		lbs/ac/yr	Annual	Total Annual	

Changes from Previous Permit:

Nitrogen loading for the fields were increased to 300 lbs/ac/yr to match the crop needs of the reed canary cover crop.

Explanation of Limits and Monitoring Requirements

The proposed permit requires Seneca to monitor and report total annual nitrogen loadings to the spray irrigation fields. The nitrogen limits have the potential to change annually without changes to the permit based on groundwater monitoring results and the language in Section 3.3.3 of the permit. The language has been updated to use ammonia nitrogen and nitrite + nitrate nitrogen as the parameters to determine if increased discharge limits apply. The limit requirements are based on 2013 permit language agreed upon between industry groups and the department until completion of the UW-Madison denitrification research study. The department may revise its approach to nitrogen loading at industrial spray irrigation facilities based on research results and discussions with industry groups. Requirements for land treatment of industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code. The Department may require further actions to comply with groundwater standard exceedances as specified in s. NR 140.24 and 140.26, Wis. Adm. Code.

Hydraulic application rate limits are the same as those in the current permit. Nitrogen loading limits were increased from 240 to 300 lb/ac/yr to match the crop needs of the reed canary cover crop.

Sample Point Number: 031- Vacek Field 4b; 051- Vacek Field 1a & 1b; 052- Vacek Fields 3a & 3b; 053- Vacek Fields 7a & 7b

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	4,000 gal/ac/day	Monthly	Monthly Avg	This limit applies from June 1 through October 31.
Hydraulic Application Rate	Monthly Avg	2,700 gal/ac/day	Monthly	Monthly Avg	This limit applies in May and November.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Monthly Avg	This limit applies December through April.
Nitrogen, Max Applied On Any Zone		300 lbs/ac/yr	Annual	Total Annual	
Nitrogen, Total		lbs/ac/yr	Annual	Total Annual	
Chloride		lbs/ac/yr	Annual	Total Annual	

Changes from Previous Permit:

Fields 1a & 1b, 3a & 3b, 7a & 7b will be combined in pairs for future spray irrigation operations and are renumbered as 051, 052 and 053.

Nitrogen loading for the fields were increased to 300 lbs/ac/yr to match the crop needs of the reed canary cover crop.

Explanation of Limits and Monitoring Requirements

The proposed permit requires Seneca to monitor and report total annual nitrogen loadings to the spray irrigation fields. The nitrogen limits have the potential to change annually without changes to the permit based on groundwater monitoring results and the language in Section 3.3.3 of the permit. The language has been updated to use ammonia nitrogen and nitrite + nitrate nitrogen as the parameters to determine if increased discharge limits apply. The limit requirements are based on 2013 permit language agreed upon between industry groups and the department until completion of the UW-Madison denitrification research study. The department may revise its approach to nitrogen loading at industrial spray irrigation facilities based on research results and discussions with industry groups. Requirements for land treatment of industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code. The Department may require further actions to comply with groundwater standard exceedances as specified in s. NR 140.24 and 140.26, Wis. Adm. Code.

For the combined fields, hydraulic application rate limits are the same as those for the Vacek “b” fields in the current permit (this is the lower loading rate between the “a” labelled fields and the “b” ones). Nitrogen loading limits were increased from 240 to 300 lb/ac/yr to match the crop needs of the reed canary cover crop.

4 Groundwater – Proposed Monitoring and Limitations

Explanation of Limits and Monitoring Requirements

Groundwater limits and requirements are determined in accordance with ch. NR 140, Wis. Adm. Code and are re-evaluated for each permit term. Ammonia nitrogen retains the PAL and ES limits from code. Indicator parameter Preventive Action Limit (PAL) values are established per s. NR 140.20 Wis. Adm. Code for organic nitrogen, total dissolved solids and pH using data from the last 5 years. Alternative Concentration Limits for nitrite + nitrate nitrogen and chloride as allowed under s. NR 140.28 Wis. Adm. Code, are established on a case by case basis using data from the last 5 years.

4.1 Groundwater Monitoring System for Lagoons 1, 2, 3

Location of Monitoring system: Surrounding inactive Lagoons numbered 1, 2 and 3

Wells to be Monitored: MW-21A (BKGRND) LAGOON 1,2 & 3, MW-21B (BKGRND) LAGOON 1,2 & 3, MW-11 LAGOONS 1, 2 & 3, MW-23A LAGOONS 1, 2 & 3, MW-23B LAGOONS 1, 2 & 3, MW-25A LAGOONS 1, 2 & 3, MW-25B LAGOONS 1, 2 & 3, MW-27A LAGOONS 1, 2 & 3, MW-27B LAGOONS 1, 2 & 3

Well Used To Calculate PALs: MW-21A (BKGRND) LAGOON 1,2 & 3, MW-21B (BKGRND) LAGOON 1,2 & 3

Enforcement Standard Wells: MW-27B LAGOONS 1, 2 & 3, MW-27A LAGOONS 1, 2 & 3, MW-25B LAGOONS 1, 2 & 3, MW-25A LAGOONS 1, 2 & 3, MW-23B LAGOONS 1, 2 & 3, MW-23A LAGOONS 1, 2 & 3

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	1/ 6 Months
Groundwater Elevation	feet	*****	N/A	1/ 6 Months
BOD5 Dissolved	mg/L	26	N/A	1/ 6 Months
COD	mg/L	20.2	N/A	1/ 6 Months
Chloride Dissolved	mg/L	125	250	1/ 6 Months
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	1/ 6 Months
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.1	10	1/ 6 Months
Nitrogen, Organic Dissolved	mg/L	2.2	N/A	1/ 6 Months
pH Field	su	8.3	N/A	1/ 6 Months
Solids, Total Dissolved	mg/L	940	N/A	1/ 6 Months
Phosphorus, Total Dissolved	mg/L	*****	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.2 Groundwater Monitoring System for ANFK

Location of Monitoring system: Aunt Nellie's Farm Kitchens field

Wells to be Monitored: MW-6 (806), MW-7 (807), MW-8 (808), MW-9 (809), MW-10 (810), MW 46 ANFC

Well Used To Calculate PALs: MW-6 (806)

Enforcement Standard Wells:

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.5	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.2	N/A	Quarterly
pH Field	su	8.5	N/A	Quarterly
Solids, Total Dissolved	mg/L	630	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.3 Groundwater Monitoring System for Lagoon 4

Location of Monitoring system: Bordering the active wastewater storage/treatment Lagoon

Wells to be Monitored: MW-5 (LAGOON 4), MW-28 (BCKGRND) LAGOON 4, MW-29A (LAGOON 4), MW-29B (LAGOON 4), MW-30 (LAGOON 4), MW-30B (LAGOON 4), MW-31 (LAGOON 4)

Well Used To Calculate PALs: MW-28 (BCKGRND) (LAGOON 4), MW-12 (LAGOON 4)

Enforcement Standard Wells: MW-31 (LAGOON 4), MW-30B (LAGOON 4), MW-30 (LAGOON 4), MW-29B (LAGOON 4), MW-29A (LAGOON 4), MW-5 (LAGOON 4)

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Groundwater Elevation	feet	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.1	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.8	N/A	Quarterly
pH Field	su	8.3	N/A	Quarterly

Solids, Total Dissolved	mg/L	1,420	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.4 Groundwater Monitoring System for Stock Fields

Location of Monitoring system: Stock Farm Fields NEQ of SEQ, Sec 15, T10N R6E

Wells to be Monitored: MW-16A (PIEZ) STOCK FIELD, MW-16C STOCK FIELD, MW-17 STOCK FIELD, MW-18B STOCK FIELD, MW-19 STOCK FIELD, MW-20A (PIEZ) STOCK FIELD, MW-20B STOCK FIELD, MW-33 STOCK FIELD, MW-37 STOCK FIELD

Well Used To Calculate PALs: MW-20B STOCK FIELD

Enforcement Standard Wells: MW-37 STOCK FIELD, MW-19 STOCK FIELD, MW-18B STOCK FIELD, MW-17 STOCK FIELD, MW-16C STOCK FIELD

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Groundwater Elevation	feet	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	3.2	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.2	N/A	Quarterly
pH Field	su	8.5	N/A	Quarterly
Solids, Total Dissolved	mg/L	860	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.5 Groundwater Monitoring System for Seneca field #15

Location of Monitoring system: Field 15 east of lagoons 3 & 4

Wells to be Monitored: MW-1 (BKG) FIELD #15, MW-15A FIELD #15, MW-45 Field #15

Well Used To Calculate PALs: MW-1 (BKG) FIELD #15

Enforcement Standard Wells: MW-45 Field #15, MW-15A FIELD #15

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Groundwater Elevation	feet	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.3	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.2	N/A	Quarterly
pH Field	su	8.4	N/A	Quarterly
Solids, Total Dissolved	mg/L	770	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.6 Groundwater Monitoring System for Haase Fields

Location of Monitoring system: Haase Farm Fields

Wells to be Monitored: MW-35 HAASE FIELD, MW-36 HAASE FIELD

Well Used To Calculate PALs: MW-36 HAASE FIELD

Enforcement Standard Wells:

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Groundwater Elevation	feet	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	4.8	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.2	N/A	Quarterly
pH Field	su	8.2	N/A	Quarterly

Solids, Total Dissolved	mg/L	990	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.7 Groundwater Monitoring System for Krueziger Fields

Location of Monitoring system: Krueziger Property

Wells to be Monitored: MW-38 KRUEZIGER FIELD, MW-39 KRUEZIGER FIELD, MW-40 KRUEZIGER FIELD, MW-41 KRUEZIGER FIELD, MW-42 KRUEZIGER FIELD, MW-43 KRUEZIGER FIELD, MW-44 KRUEZIGER FIELD

Well Used To Calculate PALs: MW-38 KRUEZIGER FIELD

Enforcement Standard Wells: MW-44 KRUEZIGER FIELD, MW-42 KRUEZIGER FIELD, MW-41 KRUEZIGER FIELD

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Groundwater Elevation	feet	*****	N/A	Quarterly
Depth To Groundwater	feet	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	7.4	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.3	N/A	Quarterly
pH Field	su	8.4	N/A	Quarterly
Solids, Total Dissolved	mg/L	760	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

4.8 Groundwater Monitoring System for Vacek Field

Location of Monitoring system: S 1/2 of Section 27, T10N, R15E, Spray Irrigation

Wells to be Monitored: MW-55 (VACEK), MW-47 (VACEK), MW-48 (VACEK), MW-49 (VACEK), MW-50 (VACEK), MW-51 (VACEK), MW-52 (VACEK), MW-53 (VACEK), MW-54 (VACEK)

Well Used To Calculate PALs: MW-54 (VACEK)

Enforcement Standard Wells: MW-53 (VACEK), MW-50 (VACEK), MW-55 (VACEK)

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	5.3	10	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.3	N/A	Quarterly
pH Field	su	8.4	N/A	Quarterly
Solids, Total Dissolved	mg/L	640	N/A	Quarterly
Iron Dissolved	mg/L	*****	N/A	Quarterly
Manganese Dissolved	mg/L	*****	N/A	Quarterly

Changes from Previous Permit:

Preventative action limits and alternative concentration limits were updated from the Feb. 20, 2020 Groundwater Evaluation.

5 Land Application –Industrial Liquid, Sludge/By-Product Solids**Sample Point Number: 006- Vegetable By-product Solids**

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Volume		lbs/month	Monthly	Total Monthly	
Solids, Total		Percent	See Permit Note	Grab Comp	
Nitrogen, Total Kjeldahl		Percent	See Permit Note	Grab Comp	
Chloride		Percent	See Permit Note	Grab Comp	
Phosphorus, Total		Percent	See Permit Note	Grab Comp	
Potassium, Total Recoverable		Percent	See Permit Note	Grab Comp	

Changes from Previous Permit:

None

Explanation of Limits and Monitoring Requirements

This outfall tracks land application of vegetable-by product solids. Most vegetable by-products are used by neighboring farmer for livestock feed and land application is rare. Sample type now requires a grab composite. Phosphorus and potassium sample results will be used to determine if additional fertilizer is needed to aid in crop growth. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code.

Sample Point Number: 007- Byproduct Wastewater/Leachate

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gal/month	Monthly	Total Monthly	
Nitrogen, Total Kjeldahl		mg/L	See Permit Note	Grab Comp	
Chloride		mg/L	See Permit Note	Grab Comp	
Phosphorus, Total		mg/L	See Permit Note	Grab Comp	
Potassium, Total Recoverable		mg/L	See Permit Note	Grab Comp	

Changes from Previous Permit:

None

Explanation of Limits and Monitoring Requirements

This outfall tracks land application of vegetable-by product liquids (leachate). When this sampling point is active in a calendar year, collect and analyze one grab composite sample prior to starting land application. Two additional composite samples shall be collected during the continuing period of land application within the remaining portion of the calendar year. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code

Sample Point Number: 013- Wastewaters from Mud Pond 1&2; 015- Wastewaters from Tanks 1 & 2; 019- Wastewater from Lagoon 4 or 5; 060- Wastewaters - Lagoon 1, 2 & 3

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gal/month	Monthly	Total Monthly	
Nitrogen, Total		mg/L	See Permit	Grab Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Kjeldahl			Note		
Chloride		mg/L	See Permit Note	Grab Comp	

Changes from Previous Permit:

None

Explanation of Limits and Monitoring Requirements

Three grab samples are combined for the composite. When this sampling point is active in a calendar year, collect and analyze one grab composite sample prior to starting land application. Two additional composite samples shall be collected during the continuing period of land application within the remaining portion of the calendar year. These outfalls are available to allow Seneca to land spread a variety of liquids (as needed) when spray irrigation cannot occur. Wastewaters stored Mud Ponds 1 and 2, Lagoon 4 or 5, as well as Tanks 1 and 2 can be land applied under certain conditions. Requirements for land application of liquid industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code.

Sample Point Number: 041- Solids from Lagoon 4 or 5; 042- Solids from Tanks 1 /& 2

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Volume		gal/month	Monthly	Total Monthly	
Solids, Total		Percent	See Permit Note	Grab Comp	
Nitrogen, Total Kjeldahl		Percent	See Permit Note	Grab Comp	
Chloride		Percent	See Permit Note	Grab Comp	

Changes from Previous Permit:

Outfall 040 to track land application of solids from the mud ponds is no longer included in the permit.

Explanation of Limits and Monitoring Requirements

These outfalls allow Seneca to land spread a variety of solids (as needed) that includes solids found in Lagoons 4 or 5 as well as Tanks 1 and 2. Solids from Mud Ponds 1 and 2 are normally removed off-site as top soil so an outfall (040) to land apply the solids is not necessary. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code

Sample Point Number: 061- Lagoon 1, 2 & 3 Sludge

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Volume		gal/month	Monthly	Total Daily	
Solids, Total		Percent	See Permit Note	Grab Comp	
Nitrogen, Total Kjeldahl		Percent	See Permit Note	Grab Comp	
Chloride		Percent	See Permit Note	Grab Comp	
Phosphorus, Total		Percent	See Permit Note	Grab Comp	
Potassium, Total Recoverable		Percent	See Permit Note	Grab Comp	

Changes from Previous Permit:

None

Explanation of Limits and Monitoring Requirements

If the lagoons are desludged, solids may be land applied. An evaluation of the sludge depth in these lagoons was performed prior to requesting the reuse of the lagoon to treat the temperature of the can cooling water. The sludge levels were low so desludging is unlikely. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code

6 Schedules

6.1 Arsenic Effluent Limits

This compliance schedule requires the permittee to achieve compliance by the specified date

Required Action	Due Date
Report on Effluent Discharges: Submit a report on effluent discharges of arsenic with conclusions regarding compliance.	9/30/2021
Action Plan: Submit an action plan for complying with the effluent limitation. If construction is required, include plans and specifications with the submittal. Alternately, after the permittee has collected at least 11 results above the method detection limit and the representative effluent data shows effluent concentrations below the calculated WQBEL, the permittee may request the Department make a determination of the need for a limit under section NR 106.05, Wis. Adm. Code. If the Department determines that effluent limitations are unnecessary based on the procedures in s. NR 106.05, Wis. Adm. Code, the Department shall notify the permittee that the limitations will not become effective, pursuant to s. NR 106.04(4), Wis. Adm. Code and the compliance schedule shall be discontinued. A permit modification is required to implement these changes.	9/30/2022
Initiate Actions: Initiate actions identified in the plan.	3/31/2023

Complete Actions: Complete actions necessary to achieve compliance with the effluent limitations.	3/31/2024
Effective Arsenic WQBEL Date: The arsenic limitations of 13 ug/L and 0.026 lbs/day as a monthly average become effective.	3/31/2025

Explanation of Arsenic Effluent Limits Schedule

The proposed arsenic limitations are new for this permittee. A compliance schedule has been included to allow Seneca time to collect data and explore options to meet limits. The compliance schedule has been set to allow Seneca to perform additional testing to further define arsenic concentrations in the surface water discharge. The limits may be dropped if the additional data shows there is no need for limits. If this occurs, Seneca is not required to complete any additional action contained in this requirement.

6.2 Copper Effluent Limits

This compliance schedule requires the permittee to achieve compliance by the specified date

Required Action	Due Date
Report on Copper Effluent Discharges: Submit a progress report that shall include an analysis of trends in monthly and weekly average effluent copper concentrations and mass loadings. This report shall also include a list of proposed source reduction measures. The first annual copper progress report is to be submitted by the Date Due.	01/31/2021
Annual Copper Progress Report #2: Submit an annual progress report that shall indicate which copper source reduction measures have been implemented during the period from January 1, 2021 to December 31, 2021. The report shall include an analysis of trends in monthly and weekly average total effluent copper concentrations and mass loadings. After the permittee has implemented the identified copper source reduction measures and if representative effluent data shows effluent concentrations below the calculated WQBEL, the permittee may request the Department make a determination of the need for a limit under section NR 106.05, Wis. Adm. Code. If the Department determines that effluent limitations are unnecessary based on the procedures in s. NR 106.05, Wis. Adm. Code, the Department shall notify the permittee that the limitations will not become effective, pursuant to s. NR 106.04(4), Wis. Adm. Code and the compliance schedule shall be discontinued. A permit modification is required to implement these changes.	01/31/2022
Annual Copper Progress Report #3: Submit an annual progress report that indicates which copper source reduction measures have been implemented during the period from January 1, 2022 to December 31, 2022. The report shall include an analysis of trends in monthly and weekly average total effluent copper concentrations and mass loadings.	01/31/2023
Annual Copper Progress Report #4: Submit an annual progress report that shall indicate which copper source reduction measures have been implemented during the period from January 1, 2023 to December 31, 2023. The report shall include an analysis of trends in monthly and annual average total effluent copper concentrations and mass loadings.	01/31/2024
Final Copper Report: : Submit a final report documenting the success in meeting the copper limitations of 67 ug/L & 0.35 lbs/day Daily Max; 36 ug/L & 0.12 lbs/day Weekly Ave.; and 36 ug/L Monthly Ave, as well as the anticipated future reduction in copper sources and copper effluent concentrations. If, however, after four years of implementing copper source reduction measures, the permittee is unable to reduce effluent copper concentrations below the water quality-based effluent limit, the permittee may apply for a variance to the copper WQBEL at the next reissuance. If a variance is approved for the next reissuance, interim limits and conditions will be imposed in the reissued permit	1/31/2025

in accordance with s. 283.15, Stats., and applicable regulations.	
Effective Copper WQBEL Date: The copper limitations of 67 ug/L & 0.35 lbs/day Daily Max; 36 ug/L & 0.12 lbs/day Weekly Ave.; and 36 ug/L Monthly Ave day become effective.	10/1/2025

Explanation of Copper Effluent Limits Schedule

The proposed copper limitations are new for this permittee. A compliance schedule has been included to allow Seneca time to collect data and explore options to meet limits. The compliance schedule has been set to allow Seneca to perform additional testing to further define copper concentrations in the surface water discharge. The limits will be effective 10/1/2025 and at that time the facility is required to be in compliance with the limitations.

6.3 Whole Effluent Toxicity Acute and Chronic Limits

This compliance schedule requires the permittee to achieve compliance by the specified date

Required Action	Due Date
Toxicity Reduction Evaluation - Part 1: Submit part one of a Toxicity Reduction Evaluation (TRE) plan describing procedures to be used to identify the source(s) responsible for the effluent toxicity.	06/30/2021
Implementation - Part 1: Implement part one of the TRE plan, make a reasonable attempt to identify the source(s) of the toxicity, and submit a report to the Department presenting the results of the evaluation.	06/30/2022
Toxicity Reduction Evaluation - Part 2: Submit part two of the TRE Plan describing actions to be taken to reduce or eliminate the toxicity identified in part one of the TRE and the dates by which those actions will be implemented.	08/31/2022
Progress Report: Submit a progress report identifying the actions taken to date to implement part two of the TRE plan.	06/30/2023
Complete Actions: Complete all actions identified in the TRE Plan and achieve compliance with the 1.0 TUa acute toxicity and 1.0 TUc chronic toxicity effluent limitations.	06/30/2024

Explanation of Whole Effluent Toxicity Acute and Chronic Limits Schedule

The compliance schedule covers the completion of a TRE to determine and eliminate the toxicity demonstrated by the chronic WET testing failures. The limitations for acute and chronic WET testing are new in this permit reissuance. The compliance schedule has been set to allow Seneca time to finish the TRE before the limits are effective. The length of the compliance was extended beyond the typical 3 year period to allow the facility to complete the copper compliance schedule before the WET limits went into effect. Copper is a possible source of effluent toxicity so actions regarding it need to be resolved before the WET compliance schedule is ended.

6.4 Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus

The permittee shall comply with the WQBELs for Phosphorus as specified. No later than 14 days following each compliance date, the permittee shall notify the Department in writing of its compliance or noncompliance. If a submittal is required, a timely submittal fulfills the notification requirement.

Required Action	Due Date
Operational Evaluation Report: The permittee shall prepare and submit to the Department for approval an operational evaluation report. The report shall include an evaluation of collected effluent data, possible source reduction measures, operational improvements or other minor facility	09/30/2021

<p>modifications that will optimize reductions in phosphorus discharges from the treatment plant during the period prior to complying with final phosphorus WQBELs and, where possible, enable compliance with final phosphorus WQBELs by 9/30/2023. The report shall provide a plan and schedule for implementation of the measures, improvements, and modifications as soon as possible, but not later than 9/30/2023 and state whether the measures, improvements, and modifications will enable compliance with final phosphorus WQBELs. Regardless of whether they are expected to result in compliance, the permittee shall implement the measures, improvements, and modifications in accordance with the plan and schedule specified in the operational evaluation report.</p> <p>If the operational evaluation report concludes that the facility can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the permittee shall comply with the final phosphorus WQBEL by 9/30/2023 and is not required to comply with the milestones identified below for years 3 through 9 of this compliance schedule ('Preliminary Compliance Alternatives Plan', 'Final Compliance Alternatives Plan', 'Final Plans and Specifications', 'Treatment Plant Upgrade to Meet WQBELs', 'Complete Construction', 'Achieve Compliance').</p> <p>STUDY OF FEASIBLE ALTERNATIVES - If the Operational Evaluation Report concludes that the permittee cannot achieve final phosphorus WQBELs with source reduction measures, operational improvements and other minor facility modifications, the permittee shall initiate a study of feasible alternatives for meeting final phosphorus WQBELs and comply with the remaining required actions of this schedule of compliance. If the Department disagrees with the conclusion of the report, and determines that the permittee can achieve final phosphorus WQBELs using the existing treatment system with only source reduction measures, operational improvements, and minor facility modifications, the Department may reopen and modify the permit to include an implementation schedule for achieving the final phosphorus WQBELs sooner than 9/30/2029.</p>	
<p>Compliance Alternatives, Source Reduction, Improvements and Modifications Status: The permittee shall submit a 'Compliance Alternatives, Source Reduction, Operational Improvements and Minor Facility Modification' status report to the Department. The report shall provide an update on the permittee's: (1) progress implementing source reduction measures, operational improvements, and minor facility modifications to optimize reductions in phosphorus discharges and, to the extent that such measures, improvements, and modifications will not enable compliance with the WQBELs, (2) status evaluating feasible alternatives for meeting phosphorus WQBELs.</p>	09/30/2022
<p>Preliminary Compliance Alternatives Plan: The permittee shall submit a preliminary compliance alternatives plan to the Department.</p> <p>If the plan concludes upgrading of the permittee's wastewater treatment facility is necessary to achieve final phosphorus WQBELs, the submittal shall include a preliminary engineering design report.</p> <p>If the plan concludes Adaptive Management will be used, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 without the Adaptive Management Plan.</p> <p>If water quality trading will be undertaken, the plan must state that trading will be pursued.</p>	09/30/2023
<p>Final Compliance Alternatives Plan: The permittee shall submit a final compliance alternatives plan to the Department.</p> <p>If the plan concludes upgrading of the permittee's wastewater treatment is necessary to meet final phosphorus WQBELs, the submittal shall include a final engineering design report addressing the treatment plant upgrades, and a facility plan if required pursuant to ch. NR 110, Wis. Adm. Code.</p> <p>If the plan concludes Adaptive Management will be implemented, the submittal shall include a completed Watershed Adaptive Management Request Form 3200-139 and an engineering report</p>	09/30/2024

<p>addressing any treatment system upgrades necessary to meet interim limits pursuant to s. NR 217.18, Wis. Adm. Code.</p> <p>If the plan concludes water quality trading will be used, the submittal shall identify potential trading partners.</p> <p>Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	
<p>Progress Report on Plans & Specifications: Submit progress report regarding the progress of preparing final plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	09/30/2025
<p>Final Plans and Specifications: Unless the permit has been modified, revoked and reissued, or reissued to include Adaptive Management or Water Quality Trading measures or to include a revised schedule based on factors in s. NR 217.17, Wis. Adm. Code, the permittee shall submit final construction plans to the Department for approval pursuant to s. 281.41, Stats., specifying treatment plant upgrades that must be constructed to achieve compliance with final phosphorus WQBELs, and a schedule for completing construction of the upgrades by the complete construction date specified below. (Note: Permit modification, revocation and reissuance, and reissuance are subject to s. 283.53(2), Stats.)</p> <p>Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	09/30/2026
<p>Treatment Plant Upgrade to Meet WQBELs: The permittee shall initiate construction of the upgrades. The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats. Upon approval of the final construction plans and schedule by the Department pursuant to s. 281.41, Stats., the permittee shall construct the treatment plant upgrades in accordance with the approved plans and specifications. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	12/31/2026
<p>Construction Upgrade Progress Report #1: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	09/30/2027
<p>Construction Upgrade Progress Report #2: The permittee shall submit a progress report on construction upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	09/30/2028
<p>Complete Construction: The permittee shall complete construction of wastewater treatment system upgrades. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	08/31/2029
<p>Achieve Compliance: The permittee shall achieve compliance with final phosphorus WQBELs. Note: See 'Alternative Approaches to Phosphorus WQBEL Compliance' in the Surface Water section of this permit.</p>	09/30/2029

Explanation of Water Quality Based Effluent Limits (WQBELs) for Total Phosphorus Schedule

This is the first permit where the facility has stringent limitations for phosphorus. This qualifies them for the full 9 year schedule before limits are effective.

6.5 Land Treatment Management Plan

A management plan is required for the land treatment system.

Required Action	Due Date
Land Treatment Management Plan: Submit an update to the management plan to optimize the land treatment system performance and demonstrate compliance with Wisconsin Administrative Code NR 214.	06/30/2021

Explanation of Schedules

Land Treatment Management Plan

An update will be needed for the land treatment management plan.

6.6 Land Treatment Annual Report

Required Action	Due Date
Submit Annual Land Treatment Report #1: Submit the Annual Land Treatment Report by January 31st for the previous calendar year.	01/31/2021
Submit Annual Land Treatment Report #2: Submit the Annual Land Treatment Report by January 31st for the previous calendar year.	01/31/2022
Submit Annual Land Treatment Report #3: Submit the Annual Land Treatment Report by January 31st for the previous calendar year.	01/31/2023
Submit Annual Land Treatment Report #4: Submit the Annual Land Treatment Report by January 31st for the previous calendar year.	01/31/2024
Submit Annual Land Treatment Report #5: Submit the Annual Land Treatment Report by January 31st for the previous calendar year.	01/31/2025

Explanation of Schedules

Land Treatment Annual Report

Annual reports are required for all permittees utilizing spray irrigations systems, ridge and furrows, seepage cells and other land treatment systems. This permittee uses spray irrigation to spread process wastewater during the growing season. Most of the wastewater generation occurs during the processing and packaging of vegetables in the late summer and early fall. Seneca will be required to calculate the total annual amounts of nitrogen and chloride that have been applied (in pounds per acre). The total amount of wastewater applied must also be reported.

6.7 Land Application Management Plan

A management plan is required for the land application system.

Required Action	Due Date
Land Application Management Plan: Submit an update to the management plan to optimize the land application system performance and demonstrate compliance with Wisconsin Administrative Code	03/31/2021

NR 214.	
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Explanation of Schedules

Land Application Management Plan

An update will be needed for the land application management plan.

6.8 Chloride Source Reduction Measures (SRMs) for Groundwater Discharges

Required Action	Due Date
Annual Progress Report: Once the chloride reduction plan (CRP) is approved by the Department, the permittee shall submit an annual progress report, under the authority of s. NR 205.07(1)(h), Wis. Adm. Code. If a SRM implementation date of an approved CRP is not met, this may constitute a violation of the permit. Submittal of the first annual progress report is required by the Date Due.	01/31/2021
Second Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	01/31/2022
Third Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	01/31/2023
Fourth Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	01/31/2024
Final Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	01/31/2025

Explanation of Schedules

Chloride Source Reduction Measures (SRMs) for Groundwater Discharges

Annual reports shall document SRMs completed and those scheduled for the following year. Monthly average chloride concentrations and annual mass loadings to the spray fields shall be included in each annual report. If the annual reports do not show a reduction in chloride loadings, a modification to the CRP may be necessary. Any modifications must receive Department approval prior to implementation. Provisions of ch. NR 140 require the permittee to take actions when chloride standards' exceedances occur. The Department has determined that on going effort is needed to determine where reductions can be realized.

6.9 Desludging Management Plan(s)

If desludging of any storages is proposed, management plans must gain Department approval.

Required Action	Due Date
Submit Desludging Management Plan: Submit a management plan for approval if removal of the solids from any storage is proposed. At a minimum, the plan (with a timetable) shall address how the solids will be sampled, removed, transported and disposed of. No desludging may occur unless approval of the Department is obtained. Daily logs shall be kept that record the volume of solids removed and destination. The plan is due sixty days prior to desludging. An applicable management plan must be submitted for each sample point. Note: Separate timetables can be proposed for individual storages.	

Explanation of Schedules

Desludging Management Plan(s)

If Seneca wishes to remove solids from any of the active or inactive storages, both a desludging plan and a land spreading plan are required. Plans are due 60 days prior to desludging.

Special Reporting Requirements

NA

Other Comments:

Attachments:

Water Quality Based Effluent Limits memo dated June 9, 2020

Groundwater Evaluation memo dated February 20, 2020

Proposed Expiration Date:

9/30/2025

Justification Of Any Waivers From Permit Application Requirements

Prepared By:

Brenda Howald Wastewater Specialist

Date: 4/23/2020, 6/4/2020, 7/1/2020

cc: Alan Hopfensperger

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: June 9, 2020

TO: Brenda Howald – SCR/Fitchburg

FROM: Wade Strickland – WY/3

SUBJECT: Water Quality-Based Effluent Limitations for the Seneca Foods Corporation - Clyman
WPDES Permit No. WI-0002160

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using Chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable), for the discharge from the Seneca Foods Corporation - Clyman in Dodge County. This industrial facility discharges to Clyman Creek, located in the Sinissippi Lake Watershed (UR08) in the Upper Rock River Basin. This watershed is included in the Rock River TMDL as approved by EPA. The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 001:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						2
BOD ₅	20 mg/L			10 mg/L		1
TSS						4
pH	9.0 s.u.	6.0 s.u.				1
Dissolved Oxygen		4.0 mg/L				1
Ammonia Nitrogen						2
Residual Chlorine	19 µg/L		7.3 µg/L	7.3 µg/L		5
Chloride						3
Copper	67 µg/L 0.35 lbs/day		36 µg/L 0.12 lbs/day	36 µg/L		5,8
Zinc						3
Hardness						9
Arsenic	13 µg/L			13 µg/L 0.026 lb/day		5,7
Phosphorus Interim Final				1.6 mg/L 0.225 mg/L	0.075 mg/L 0.15 lbs/day	6
Temperature (deg F)						
January			49			
February			50			
April			55			
July	85		81			
August	84		81			
September	82		73			

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
October	80		61			
November	77		49			
December	76		49			
Acute WET	1.0 TU _a					10,12
Chronic WET				1.0 TU _c		11,12,13

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
3. Monitoring at a frequency to ensure that 11 samples are available at the next permit issuance.
4. TSS numerical limitations are not recommended at this time. However, narrative limits and monitoring for TSS are recommended to comply with the requirements of the Rock River TMDL.
5. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7) are included in bold.
6. The interim limit for the phosphorus compliance schedule and is based on the 4-day P₉₉ analysis.
7. This is the WQBEL for arsenic. If this limit is included in the permit, mass limits would also need to be included.
8. These are the WQBELs for copper. If this limit is included in the permit, mass limits would also need to be included.
9. Hardness monitoring is recommended because of the relationship between hardness and daily maximum copper and zinc limits based on acute toxicity criteria.
10. Annual acute WET tests are recommended in the reissued permit.
11. Twice-annual chronic WET tests are recommended. The Instream Waste Concentration (IWC) to assess chronic test results is 100%. According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), chronic testing shall be performed using a dilution series of 100%, 75%, 50%, 25% & 12.5%, and the dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from Clyman Creek.
12. Sampling WET concurrently with any chemical-specific toxic substances is recommended. Tests should be done in rotating quarters, to collect seasonal information about this discharge and should continue after the permit expiration date (until the permit is reissued).
13. It is recommended that a schedule be included in the permit which allows time for a toxicity reduction evaluation (TRE) to be completed to find and fix the source of the toxicity and achieve compliance with the new WET limit. The WET limit should become effective and monitoring recommended above should begin after the TRE schedule has been completed.

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Sarah Luck at (608) 275-3230 (Sarah.Luck@wisconsin.gov) or Diane Figiel at (608) 264-6274 (Diane.Figiel@wisconsin.gov).

Attachments (3) – Narrative, Site Map, and Thermal Table

PREPARED BY: Sarah Luck, Water Resources Engineer

APPROVED BY: _____ Date: _____
Diane Figiel, PE,
Water Resources Engineer

E-cc: Alan Hopfensperger, Hydrogeologist – SCR/Fitchburg
Tom Bauman, Regional Wastewater Supervisor – SCR/Fitchburg
Diane Figiel, Water Resources Engineer – WY/3
Kari Fleming, Environmental Toxicologist – WY/3

**Water Quality-Based Effluent Limitations for
Seneca Foods Corporation - Clyman**

WPDES Permit No. WI-0002160

Prepared by: Sarah Luck

PART 1 – BACKGROUND INFORMATION

Facility Description:

Seneca Foods Corporation - Clyman operates a vegetable processing plant in the Village of Clyman in Dodge County. This facility cans various vegetables throughout the growing season, which generally begins in July and ends in October. During the cold season, the facility produces formulated products such as gravies, fruit and vegetable cups, three bean salads, potato salad, and special product orders such as tomato products (e.g. spaghetti sauces). This facility operates 365 days a year and 24 hours a day during their peak season.

Process wastewater is discharged to Lagoon 4 or Mud Pond to a spray irrigation field. This evaluation considers only the can cooling water which is discharged to surface water via outfall 001 during the canning season only.

Attachment #2 is a map of the area showing the approximate location of Outfall 001.

Existing Permit Limitations: The current permit, which expired on March 31, 2020, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Six-Month Average	Footnotes
Flow Rate						3
BOD ₅	20 mg/L			10 mg/L		1
TSS						2
pH	9.0 s.u.	6.0 s.u.				1
Dissolved Oxygen		4.0 mg/L				1
Ammonia Nitrogen						3
Residual Chlorine	38 µg/L		7.3 µg/L			1
Chloride						3
Copper						3
Zinc						3,5
Hardness						3
Phosphorus						2
Temperature	120°F					4
Acute WET						6
Chronic WET						7

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. Phosphorus and TSS numerical limitations are not recommended at this time. However, narrative limits and monitoring for phosphorus and TSS are recommended to comply with the requirements of the Rock River TMDL. Phosphorus limitations based on s. NR 217.13 were not recommended because at the time the mean effluent concentration was less than the calculated limit of 0.075 mg/L.
3. Monitoring only.
4. The daily maximum temperature limitation of 120°F is an interim limit. The following limits become effective January 1, 2020:

Month	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	49	76
FEB	50	76
MAR	52	77
APR	55	79
MAY	65	82
JUN	76	84
JUL	81	85
AUG	81	84
SEP	73	82
OCT	61	80
NOV	49	77
DEC	49	76

5. The facility was given zinc limits initially, but after an updated evaluation, detailed in the memo addendum dated April 13, 2017, the limits and compliance schedule were no longer determined to be necessary and were removed from the permit.
6. Acute WET tests are required September 2015, August 2016, October 2017, August 2018, and July 2019.
7. Chronic WET tests are required September 2015 & October 2015; July 2016 & August 2016, July 2017 & October 2017, August 2018 & September 2018, and July 2019 & October 2019 (if discharging) using an IWC of 100%.

- **Receiving Water Information:**

- Name: Clyman Creek
- Classification used in accordance with chs. NR 102 and 104, Wis. Adm. Code: Warm water sport fish community, non-public water supply.
- Low Flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code:
 $7-Q_{10} = 0$ cfs (cubic feet per second)
 $7-Q_2 = 0$ cfs
- Hardness = 423 mg/L as CaCO_3 . This value represents the geometric mean of data from 2015 – 2018 WET testing.
- % of low flow used to calculate limits in accordance with s. NR 106.06 (4) (c) 5., Wis. Adm. Code: Not applicable since there is no flow available at the point of discharge.
- Source of background concentration data: Background concentrations are not included because they don't impact the calculated WQBEL when the receiving water low flows are equal to zero.
- Multiple dischargers: None.

- Impaired water status: Clyman Creek is not listed as impaired. However, Silver Creek, located approximately 3.8 miles downstream of the outfall, was listed on 04/01/2018 as impaired for total phosphorus, as is the Rock River, located approximately 7.5 miles downstream of the outfall.

- **Effluent Information:**

- Flow Rate(s):

Maximum annual average (excluding zeros) = 0.238 MGD (Million Gallons per Day)

Peak daily = 0.629 MGD

Peak weekly = 0.385 MGD

Peak monthly = 0.311 MGD

For reference, the overall average flow (excluding zeros) from July 2015 through October 2019 was 0.147 MGD.

- Hardness = 469 mg/L as CaCO₃. This value represents the geometric mean of effluent data from July 2016 through August 2018 reported in the DMR.
- Acute dilution factor used in accordance with s. NR 106.06 (3) (c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Water Source: Village of Clyman and private well.
- Additives: Magnesium bisulfite (dechlorination), sodium bromide (microbiocide), sodium hypochlorite (microbiocide), ChemTreat CL4354 (can sheen), and ChemTreat CL5684 (can sheen).
- Effluent characterization: This facility is categorized as a secondary industry, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus Ammonia, Chloride, Hardness and Phosphorus.

Sample Date	Chloride mg/L	Sample Date	Chloride mg/L	Sample Date	Chloride mg/L
08/01/2018	36	09/12/2018	73.5	10/24/2018	30.8
08/08/2018	44.2	09/19/2018	63.7	11/07/2018	38.8
08/15/2018	37.8	09/26/2018	55.5	11/14/2018	163.0
08/22/2018	41.8	10/03/2018	35.5	11/20/2018	56.8
08/29/2018	39.2	10/10/2018	31.9		
09/05/2018	57.7	10/17/2018	31.8		
1-day P ₉₉ = 166 mg/L					
4-day P ₉₉ = 101 mg/L					

Sample Date	Copper µg/L	Sample Date	Copper µg/L	Sample Date	Copper µg/L
07/27/2016	41.4	07/05/2017	621	09/06/2017	1230
07/28/2016	532	07/12/2017	1050	07/25/2018	65.1
08/03/2016	546	08/02/2017	565	08/01/2018	<6.3
08/10/2016	970	08/09/2017	99.1	08/08/2018	98.8
1-day P ₉₉ = 2070 µg/L					
4-day P ₉₉ = 1190 µg/L					

“<” means that the pollutant was not detected at the indicated level of detection and 0 was used in the calculation.

Sample Date	Hardness mg/L	Sample Date	Hardness mg/L	Sample Date	Hardness mg/L
07/27/2016	425	07/05/2017	587	09/06/2017	400
07/28/2016	742	07/12/2017	360	07/25/2018	423

08/03/2016	435	08/02/2017	732	08/01/2018	391
08/10/2016	473	08/09/2017	401	08/08/2018	422
Geometric Mean = 469 mg/L as CaCO ₃					

	Zinc µg/L
1-day P ₉₉	271
4-day P ₉₉	159
30-day P ₉₉	99.8
Mean	73.8
Std	53.7
Sample size	48
Range	<9.3 - 314

Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2 below, in the column titled “MEAN EFFL. CONC.”.

The following table presents the average concentrations and loadings at Outfall 001 from 2015 through 2019 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6):

	Average Measurement
BOD ₅	5.7 mg/L*
TSS	3.5 mg/L*
pH field	7.68 s.u.
Dissolved oxygen	6.0 mg/L

*Results below the level of detection (LOD) were included as zeroes in calculation of average.

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P₉₉) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Acute Limits based on 1-Q₁₀

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Adm. Code (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q₁₀ receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards.

$$\text{Limitation} = \frac{(\text{WQC}) (Q_s + (1-f) Q_e) - (Q_s - f Q_e) (C_s)}{Q_e}$$

Where:

WQC = Acute toxicity criterion or secondary acute value according to ch. NR 105

Q_s = average minimum 1-day flow which occurs once in 10 years (1-day Q₁₀)

if the 1-day Q₁₀ flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q₁₀).

Q_e = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

C_s = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

As a rule of thumb, if the receiving water is effluent dominated under low stream flow conditions, the 1-Q₁₀ method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is the case for Seneca Foods Corporation – Clyman.

The following tables list the calculated water quality-based effluent limitations for this discharge along with the results of effluent sampling for all the detected substances. All concentrations are expressed in terms of micrograms per Liter (µg/L), except for hardness and chloride (mg/L).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

RECEIVING WATER FLOW = 0 cfs, (1-Q₁₀ (estimated as 80% of 7-Q₁₀)), as specified in s. NR 106.06 (3) (bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD.* mg/L	ATC	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P ₉₉	1-day MAX. CONC.
Chlorine		19	19	3.8	<100		
Arsenic		340	340	68	3.1		
Cadmium	457	59	59	12	<0.15		
Chromium	301	4400	4400	890	1.1		
Copper	469	66.7	66.7			2070	1230
Lead	356	370	370	73	0.80		
Nickel	268	1100	1100	220	8.3		
Zinc	333	345	345			271	157
Chloride (mg/L)		757	757			166	163

* The indicated hardness may differ from the effluent hardness because the effluent hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the acute criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

* * Per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016 consideration of ambient concentrations and 1-Q₁₀ flow rates yields a more restrictive limit than the 2 × ATC method of limit calculation.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)

RECEIVING WATER FLOW = 0 cfs (¼ of the 7-Q₁₀), as specified in s. NR 106.06 (4) (c), Wis. Adm. Code

SUBSTANCE	REF. HARD.* mg/L	CTC	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P ₉₉
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Chlorine		7.3	7.3	1.5	<100	
Arsenic		150	150	30	3.1	
Cadmium	175	3.8	3.8	0.76	<0.15	
Chromium	301	330	330	65	1.1	
Copper	423	35.5	35.5			1190
Lead	356	96	96	19	0.80	
Nickel	268	120	120	24	8.3	
Zinc	333	345	345			159
Chloride (mg/L)		395	395			101

* The indicated hardness may differ from the receiving water hardness because the receiving water hardness exceeded the maximum range in ch. NR 105, Wis. Adm. Code, over which the chronic criteria are applicable. In that case, the maximum of the range is used to calculate the criterion.

Monthly Average Limits based on Wildlife Criteria (WC)

The effluent characterization did not include any effluent sampling results for substances for which Wildlife Criteria exist.

Monthly Average Limits based on Human Threshold Criteria (HTC)

RECEIVING WATER FLOW = 0 cfs (1/4 of Harmonic Mean), as specified in s. NR 106.06 (4), Wis. Adm. Code.

SUBSTANCE	HTC	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Cadmium	370	370	74	<0.15
Chromium (+3)	3800000	3800000	760000	1.1
Lead	140	140	28	0.80
Nickel	43000	43000	8600	8.3

Monthly Average Limits based on Human Cancer Criteria (HCC)

RECEIVING WATER FLOW = 0 cfs (1/4 of Harmonic Mean), as specified in s. NR 106.06 (4), Wis. Adm. Code.

SUBSTANCE	HCC	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.
Arsenic	13	13	2.7	3.1

In addition to evaluating the need for limits for each individual substance for which HCC exist, s. NR 106.06(8), Wis. Adm. Code, requires the evaluation of the cumulative cancer risk. Because only one substance for which Human Cancer Criteria exists was detected, determination of the cumulative cancer risk is not needed per s. NR 106.06(8), Wis. Adm. Code.

Conclusions and Recommendations: Based on a comparison of the effluent data and calculated effluent limitations, effluent limitations are required for copper and arsenic.

Copper – Considering available effluent data from the current permit term (July 2016 through August 2018), the 1-day P₉₉ concentration is 2070 µg/L, with a maximum concentration of 1230 µg/L. The 4-day P₉₉ concentration is 1190 µg/L. The 1-day P₉₉ and the 4-day P₉₉ of the effluent data exceed the calculated daily maximum and weekly average limits, therefore concentration and mass limits, as well as monthly monitoring, are required.

The acute mass limitation of 0.35 lb/day is based on the concentration limit and the peak daily flow rate of 0.629 MGD ($67 \mu\text{g/L} * 0.629 \text{ MGD} * 8.34/1000$) in accordance with s. NR 106.07(2)(b), Wis. Adm. Code. The chronic mass limitation of 0.12 lb/day is based on the concentration limit and the peak weekly flow rate of 0.385 MGD ($36 \mu\text{g/L} * 0.385 \text{ MGD} * 8.34/1000$) in accordance with s. NR 106.07(2)(c), Wis. Adm. Code. Only flows during times of discharge were considered.

Quarterly hardness monitoring is also recommended because of the relationship between hardness and daily maximum limits based on acute toxicity criteria.

Arsenic – Seneca Foods Corporation – Clyman reported a value of $3.1 \mu\text{g/L}$ on their permit application. This value is greater than $1/5^{\text{th}}$ of the calculated human cancer criteria limit of $13 \mu\text{g/L}$. Therefore, a monthly limit of $13 \mu\text{g/L}$ is required.

The monthly average mass limitation of 0.068 lb/day is based on the concentration limit and the peak daily flow rate of 0.629 MGD ($13 \mu\text{g/L} * 0.629 \text{ MGD} * 8.34/1000$) in accordance with s. NR 106.07(2)(b), Wis. Adm. Code.

Total Residual Chlorine – The previous WPDES permit for Seneca Foods Corporation - Clyman contains a daily maximum residual chlorine limit of $38 \mu\text{g/L}$. This limit is recommended for inclusion in the reissued permit. Due to revisions to s. NR 106.07(2), Wis. Adm. Code, mass limitations are no longer required. The weekly average effluent limitation of $7.3 \mu\text{g/L}$ should also be included in the permit because it is more restrictive than the daily maximum limit. Additional limits to meet the requirements in s. NR 106.07, Wis. Adm Code, are addressed in Part 7: Expression of Limits.

Chloride – Considering available effluent data from the current permit term (sampled in 2018), the 1-day P_{99} chloride concentration is 166 mg/L , and the 4-day P_{99} of effluent data is 101 mg/L .

These effluent concentrations are below the calculated WQBELs for chloride; therefore, no effluent limits are needed. Chloride monitoring is recommended to ensure that 11 sample results are available at the next permit issuance to meet the data requirements of s. NR 106.85, Wis. Adm. Code.

Zinc – No effluent limits are needed, but zinc monitoring at a frequency to ensure that 11 samples are available at the next permit issuance is recommended.

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for this substance effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. Seneca Foods Corporation - Clyman submitted 18 samples for Ammonia Nitrogen taken at Outfall 001 from July 2018 through November 2018. All the samples came back below the level of detection of 0.25 mg/L . This is lower than any ammonia limits which would be calculated, therefore, no ammonia limits are recommended in the reissued permit.

PART 4 – PHOSPHORUS

Technology Based Phosphorus Limit

Subchapter II of Chapter NR 217, Wis. Adm. Code, requires industrial facilities that discharge greater than 60 pounds of Total Phosphorus per month to comply with a 12-month rolling average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because Seneca Foods Corporation - Clyman does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 60 lbs/month threshold in accordance to s. NR 217.04(1)(a)2, Wis. Adm. Code, and therefore no technology-based limit is required.

Month	Average Phosphorus Concentration (mg/L)	Total Effluent Flow (Million Gallons)	Calculated Mass (lbs/month)
July 2018	0.91	0.676	5
August 2018	0.92	6.994	54
September 2018	0.87	4.956	36
October 2018	1.02	3.728	32
November 2018	0.53	1.035	5
Average			26

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)
Where total flow is the sum of the actual (not design) flow (in MGD) for that month

In addition, the need for a WQBEL for phosphorus must be considered.

Water Quality-Based Effluent Limits (WQBEL)

Revisions to administrative rules regulating phosphorus took effect on December 1, 2010. These rule revisions include additions to s. NR 102.06, Wis. Adm. Code, which establish phosphorus standards for surface waters. Subchapter III of NR 217, Wis. Adm. Code, establishes procedures for determining WQBELs for phosphorus, based on the applicable standards in ch. NR 102, Wis. Adm. Code.

The Department has developed a TMDL for the Upper and Lower Rock River Basins. The US EPA approved the Rock River TMDL on September 28, 2011. The document, along with the referenced appendices can be found at:

http://dnr.wi.gov/topic/TMDLs/RockRiver/Final_Rock_River_TMDL_Report_with_Tables.pdf

Section NR 217.16, Wis. Adm. Code, states that the Department may include a TMDL-derived water quality based effluent limit (WQBEL) for phosphorus in addition to, or in lieu of, a s. NR 217.13 WQBEL in a WPDES permit. The TMDL allocations are based on reductions in phosphorus loading to the Rock River and other phosphorus impaired waterbodies in the basin. If the discharge is to a water which isn't listed as impaired (303d) then limits based on NR 217.13 are necessary to protect the immediate receiving water and should also be evaluated. Because Clyman Creek is not currently listed as an impaired (303d) waterbody, the Rock River TMDL is not designed to be protective of the immediate receiving water. The first impaired waterbody downstream from the Seneca - Clyman discharge is the Rock River approximately nine miles downstream.

TMDL Limits – Phosphorus

Seneca Foods Corporation – Clyman Plant is located on Reach 29 of the Rock River from Johnson Creek to Mile 249 as identified in the Rock River TMDL. Although a phosphorus wasteload allocation (WLA) for Seneca - Clyman was not specifically listed in the TMDL the total reduction of phosphorus for this reach is 64%. Based on available data Seneca - Clyman is not believed to be a significant source of phosphorus to the impaired reach, a **TMDL-derived phosphorus limit is not recommended at this**

time. The phosphorus reduction specified in the TMDL will be achieved through other point source reductions within the reach, mainly from the City of Watertown WWTP.

Monitoring should be conducted throughout the permit term to determine if phosphorus limits are needed to comply with the Rock River TMDL, and Seneca - Clyman should initiate a phosphorus optimization strategy to reduce as much of the phosphorus as practical from their discharge.

Point of Discharge Limits – Phosphorus

Section NR 102.06(3)(a), Wis. Adm. Code, specifically names river segments for which a phosphorus criterion of 0.100 mg/L applies. For other stream segments that are not specified in s. NR 102.06(3)(a), Wis. Adm. Code, s. NR 102.06(3)(b), Wis. Adm. Code, specifies a phosphorus criterion of 0.075 mg/L. The phosphorus criterion of 0.075 mg/L applies for Clyman Creek.

The conservation of mass equation is described in s. NR 217.13 (2)(a), Wis. Adm. Code, for phosphorus WQBELs and includes variables of water quality criterion (WQC), receiving water flow rate (Qs), effluent flow rate (Qe), and upstream phosphorus concentrations (Cs):

$$\text{Limitation} = [(WQC)(Q_s + (1-f) Q_e) - (Q_s - f Q_e) (C_s)] / Q_e$$

Where:

WQC = 0.075 mg/L for Clyman Creek

Qs = 0 cfs

Cs = background concentration of phosphorus in the receiving water pursuant to s. NR 217.13(2)(d), Wis. Adm. Code

Qe = effluent flow rate = 0.238 = 0.368 cfs

f = the fraction of effluent withdrawn from the receiving water = 0

Since the receiving water flow is equal to zero, the effluent limit is set equal to criteria.

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from July 2015 through November 2018.

	Phosphorus mg/L
1-day P ₉₉	2.8
4-day P ₉₉	1.6
30-day P ₉₉	0.94
Mean	0.66
Std	0.57
Sample size	36
Range	0.038 - 2.8

Reasonable Potential Determination

Since the 30-day P₉₉ of reported effluent total phosphorus data is greater than the calculated WQBEL, **the discharge has reasonable potential to cause or contribute to an exceedance of the water quality criterion. Therefore, a WQBEL is required.**

Limit Expression

According to s. NR 217.14 (2), Wis. Adm. Code, because the calculated QBEL is less than or equal to 0.3 mg/L, the effluent limit of 0.075 mg/L may be expressed as a six-month average. If a concentration limitation expressed as a six-month average is included in the permit, a monthly average concentration limitation of 0.225 mg/L, equal to three times the QBEL calculated under s. NR 217.13, Wis. Adm. Code shall also be included in the permit. The six-month average should be averaged during the months of May – October and November – April.

Mass Limits

Because the discharge is to a surface water that is upstream of a phosphorus impaired water that has an approved TMDL, a mass limit is also required, pursuant to s. NR 217.14(1)(a), Wis. Adm. Code. **This final mass limit shall be 0.075 mg/L × 8.34 × 0.238 MGD = 0.15 lb/day expressed as a six-month average.**

Interim Limit

An interim limit is required per s. NR 217.17, Wis. Adm. Code, when a compliance schedule is needed in the permit to meet the QBEL. The interim limit should reflect a concentration that the facility is able to meet without investing in additional “temporary” treatment, but also should prevent backsliding from current conditions. Therefore, **it is recommended that the interim limit be set equal to 1.6 mg/L for permit reissuance along with requirements for optimization of phosphorus removal.** This value reflects the 4-day P₉₉ concentration of 1.6 mg/L from the past three years (2015-2018). This value is recommended instead of the 30-day P₉₉ concentration of 0.94 mg/L to allow operational flexibility when the facility begins to initiate phosphorus treatment optimization activities, which often consist of trial and error.

PART 5 – TOTAL SUSPENDED SOLIDS TMDL LIMITATIONS

The Rock River TMDL Waste Load Allocation (WLA) for Phosphorus and Total Suspended Solids was approved by the U.S. Environmental Protection Agency on September 28, 2011. Seneca Foods Corporation – Clyman is located on Reach 29 of the Rock River from Johnson Creek to Mile 249 as identified in the Rock River TMDL. The Total Suspended Solids load reduction target for facilities in this reach is unspecified, but total reduction for the reach is 0% (reduction target for nonpoint sources and MS4s in Reach 28).

Effluent Data

The following table summarizes effluent total phosphorus monitoring data from July 2015 through November 2018.

	TSS mg/L
1-day P ₉₉	14
4-day P ₉₉	8.0
30-day P ₉₉	4.9
Mean	3.5
Std	2.8
Sample size	38
Range	<0 - 13

Recommendations and Narrative Limit

Based on available data, Seneca Foods Corporation – Clyman is not believed to be a significant source of TSS to the impaired reach. Therefore, a TMDL-derived limit is not recommended at this time. Additional monitoring should be conducted throughout the permit term, and Seneca Foods Corporation – Clyman should reduce as much TSS as practicable from their discharge. It is recommended that the permit retain language similar to the following (along with appropriate TSS monitoring):

The permittee shall monitor total suspended solids (TSS) as required in this permit to better define the probable TSS sources and determine if any fluctuations in discharge concentrations based on vegetables being processed exist. The permittee shall identify source reduction measures, operational improvements or other minor facility modifications that will optimize reductions in TSS discharged; and operate the facility to minimize the TSS being discharged. The permittee is encouraged to complete any additional sampling as necessary.

Any reduction in TSS made by Seneca Foods Corporation – Clyman would present an additional reduction from the baseline used to develop the Rock River TMDL. Therefore, this narrative approach is believed to be sufficiently protective of local and downstream water quality at this time. Upon the next permit reissuance, this decision should be re-evaluated to determine if numeric TSS limits are necessary.

PART 6 – THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from July 2015 through October 2019.

The table below summarizes the maximum temperatures reported during monitoring from July 2015 through October 2019.

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(°F)
JAN	64	67	49	76
FEB	49	56	50	76
MAR	48	49	52	77
APR	56	58	55	79

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(°F)
MAY	56	62	65	82
JUN	64	67	76	84
JUL	113	116	81	85
AUG	108	129	81	84
SEP	106	118	73	82
OCT	106	118	61	80
NOV	106	109	49	77
DEC	80	93	49	76

Reasonable Potential

Permit limits for temperature are recommended based on the procedures in s. NR 106.56, Wis. Adm. Code.

- An acute limit for temperature is recommended for each month in which the representative daily maximum effluent temperature for that month exceeds the acute WQBEL. The representative daily maximum effluent temperature is the greater of the following:
 - (a) The highest recorded representative daily maximum effluent temperature
 - (b) The projected 99th percentile of all representative daily maximum effluent temperatures
- A sub-lethal limitation for temperature is recommended for each month in which the representative weekly average effluent temperature for that month exceeds the weekly average WQBEL. The representative weekly average effluent temperature is the greater of the following:
 - (a) The highest weekly average effluent temperature for the month.
 - (b) The projected 99th percentile of all representative weekly average effluent temperatures for the month

Comparing the representative highest effluent temperature to the calculated effluent limits determines the reasonable potential of exceeding the effluent limits. The months in which limitations are recommended are highlighted. Based on this analysis, daily maximum temperature limits are needed for the months of July, August, September, October, November, and December, and weekly average temperature maximum limits are necessary for the months of January, February, April, July, August, September, October, November, and December.

The following general options are available for a facility to explore potential relief from the temperature limits:

- Effluent monitoring data: Verification or additional effluent monitoring (flow and/or temperature) may be appropriate if there were questions on the representativeness of the current effluent data.
- Collection of site-specific ambient temperature: default background temperatures for streams in Wisconsin, so actual data from the direct receiving water may provide for relaxed thermal limits but only if the site-specific temperatures are lower than the small stream defaults used in the above tables.

- A variance to the water quality standard: This is typically considered to be the least preferable and most complex option as it requires the evaluation of the other alternatives.

These options are explained in additional detail in the August 15, 2013 Department *Guidance for Implementation of Wisconsin's Thermal Water Quality Standards*
<http://dnr.wi.gov/topic/surfacewater/documents/ThermalGuidance2edition8152013.pdf>

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data and the need for WET limits were made according to ss. NR 106.08 and 106.09, Wis. Adm. Code. WET monitoring frequency and toxicity reduction evaluation (TRE) recommendations were made using the best professional judgment of staff familiar with the discharge after consideration of the guidance in the WET Program Guidance Document (October 29, 2019).

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC₅₀ (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09 (2) (b), Wis. Adm Code.
- Chronic tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC₂₅ (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09 (3) (b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The IWC of 100% shown in the WET Checklist summary below was calculated according to the following equation, as specified in s. NR 106.03(6), Wis. Adm Code:

$$\text{IWC (as \%)} = Q_e \div \{(1 - f) Q_e + Q_s\} \times 100$$

Where:

Q_e = actual annual average flow = 0.238 MGD = 0.368 cfs
 f = fraction of the Q_e withdrawn from the receiving water = 0
 Q_s = 1/4 of the 7- Q_{10} = 0 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit.
- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfall 001 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location must be specified in the WPDES permit.
- Shown below is a tabulation of all available WET data for Outfall 001. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08 (3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not

included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

Tests conducted prior to 2005 are not presented in the table below due to significant changes that were made to WET test methods in 2004 and were assumed to be fully implemented by certified labs by no later than June 2005. Data collected before July 1, 2005 does not show repeated toxicity that was never resolved and is not the only data that is available.

WET Data History

Date Test Initiated	Acute Results LC ₅₀ % (% survival in 100% effluent)				Chronic Results IC ₂₅ %				Footnotes or Comments
	<i>C. dubia</i>	Fathead minnow	Pass or Fail?	Used in RP?	<i>C. dubia</i>	Fathead Minnow	Pass or Fail?	Use in RP?	
09/29/2015	26.1	66.1	Fail	Yes	28.2	>100	Fail	Yes	
10/13/2015	>100	75.5	Fail	Yes	>100	3.5	Fail	Yes	Retest
11/03/2015	>100	>100	Pass	Yes	81.2	>100	Fail	Yes	Retest
11/10/2015	>100	>100	Pass	Yes	38.9	4.1	Fail	Yes	Retest
12/01/2015	>100	>100	Pass	Yes	>100	>100	Pass	Yes	Retest
08/30/2016	>100	>100	Pass	Yes	16.8	>100	Fail	Yes	
09/08/2016	-	-	-	-	61.8	>100	Fail	Yes	
07/25/2017	-	-	-	-	39.6	46.1	Fail	Yes	
10/03/2017	>100	>100	Pass	Yes	4.7	9.3	Fail	Yes	
11/14/2017	>100	>100	Pass	Yes	>100	>100	Pass	Yes	
07/24/2018	>100	>100	Pass	Yes	>100	>100	Pass	Yes	
08/07/2018	-	-	-	-	>100	>100	Pass	Yes	
09/25/2018	-	-	-	-	35.2	>100	Fail	Yes	
10/23/2018	-	-	-	-	>100	>100	Pass	Yes	Retest
11/06/2018	-	-	-	-	>100	>100	Pass	Yes	Retest
07/30/2019	>100	>100	Pass	Yes	>100	>100	Pass	Yes	
10/22/2019	-	-	-	-	65.9	>100	Fail	Yes	
11/19/2019	-	-	-	-	>100	>100	Pass	Yes	Retest

- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

Acute Reasonable Potential = [(TUa effluent) (B)]

TUa (maximum) 100/LC ₅₀	B (multiplication factor from s. NR 106.08(5)(c), Wis. Adm. Code, Table 4)
100/26.1 =	3.8

3.83	Based on 2 detects
------	--------------------

$$[(TU_a \text{ effluent}) (B)] = 14.6 > 1.0$$

$$\text{Chronic Reasonable Potential} = [(TU_c \text{ effluent}) (B)(IWC)]$$

TU_c (maximum) 100/IC ₂₅	B (multiplication factor from s. NR 106.08(5)(c), Wis. Adm. Code, Table 4)	IWC
100/3.5 = 28.6	1.7 Based on 10 detects	100%

$$[(TU_c \text{ effluent}) (B)(IWC)] = 49 > 1.0$$

Therefore, reasonable potential is shown for acute and chronic WET using the procedures in s. NR 106.08(6) and representative data from 2015 through 2019.

Expression of WET limits [round WET limits to two sig figs]

Acute WET limit = 1.0 TU_a (daily maximum)

Chronic WET limit = 1.0 TU_c (monthly average)

The WET Checklist was developed to help DNR staff make recommendations regarding WET limits, monitoring, and other related permit conditions. The Checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code. The Checklist steps the user through a series of questions, assesses points based on the potential for effluent toxicity, and suggests monitoring frequencies based on points accumulated during the Checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. A summary of the WET Checklist analysis completed for this permittee is shown in the table below. Staff recommendations based on best professional judgment are provided below the summary table. For guidance related to reasonable potential and the WET Checklist, see Chapter 1.3 of the WET Guidance Document: <http://dnr.wi.gov/topic/wastewater/WETguidance.html>.

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. 0 Points	IWC = 100% 15 Points
Historical Data	10 tests used to calculate RP. 2 tests failed. 0 Points	18 tests used to calculate RP. 10 tests failed. 0 Points
Effluent Variability	Little variability, no violations or upsets, consistent WWTF operations. 0 Points	Same as Acute. 0 Points
Receiving Water Classification	Warm water sport fish 5 Points	Same as Acute. 5 Points
Chemical-Specific Data	Limit for copper based on ATC; arsenic, chloride, chromium, lead, nickel, and zinc detected. Additional Compounds of Concern: None. 8 Points	Limits for arsenic and copper based on CTC; chloride, chromium, lead, nickel, and zinc detected. Additional Compounds of Concern: None. 9 Points
Additives	2 Biocides (sodium bromide (microbiocide) and sodium hypochlorite (microbiocide)) and 3 Water Quality Conditioner (magnesium bisulfite for dechlorination and 2 can sheen chemicals) added. P treatment chemical other than Ferric Chloride (FeCl ₃), Ferrous Sulfate (FeSO ₄), or alum used: No 9 Points	All additives used more than once per 4 days. 9 Points
Discharge Category	Industrial food processor 5 Points	Same as Acute. 5 Points
Wastewater Treatment	No treatment 10 Points	Same as Acute. 10 Points
Downstream Impacts	No impacts known 0 Points	Same as Acute. 0 Points
Total Checklist Points:	37 Points	53 Points
Recommended Monitoring Frequency (from Checklist):	1x yearly	2x yearly
Limit Required?	Yes Limit = 1.0 TU _a	Yes Limit = 1.0 TU _c
TRE Recommended? (from Checklist)	No	Yes

- After consideration of the guidance provided in the Department's WET Program Guidance Document (2019) and other information described above annual acute and twice annual chronic WET tests are recommended in the reissued permit. Tests should be done in rotating quarters to collect seasonal information about this discharge. WET testing should continue after the permit expiration date (until the permit is reissued).
- According to the requirements specified in s. NR 106.08, Wis. Adm. Code, acute and chronic WET

limits are required. The acute WET limit shall be expressed as 1.0 TUa as a daily maximum in the effluent limits table of the permit. The chronic WET limit shall be expressed as 1.0 TUC as a monthly average in the effluent limits table of the permit.

- Toxicity has been measured in 10/18 tests conducted on this effluent, as shown in the WET Data History table above. Due to this repeated toxicity, it is recommended that a schedule be included in the permit which allows time for a toxicity reduction evaluation (TRE) to be completed to find and fix the source of the toxicity and achieve compliance with the new WET limit. The WET limit should become effective and monitoring recommended above should begin after the TRE schedule has been completed. Guidance related to TRE schedules is provided in Chapter 1.12 of the WET Guidance Document.
- A minimum of annual acute and chronic monitoring is required because acute and chronic WET limits are required. Federal regulations in 40 CFR Part 122.44(i) require that monitoring occur at least once per year when a limit is present.

PART 8 – EXPRESSION OF LIMITS

Revisions to chs. NR 106 and 205, Wis. Adm. Code align Wisconsin's water quality-based effluent limits with 40 CFR 122.45(d), which requires WPDES permits contain the following concentration limits, whenever practicable and necessary to protect water quality:

- Weekly average and monthly average limitations for continuous discharges subject to ch. NR 210.
- Daily maximum and monthly average limitations for all other discharges.

Seneca Foods Corporation - Clyman is an industrial discharge and is therefore subject to daily maximum and monthly average limitations whenever limitations are determined to be necessary.

This evaluation provides additional limitations necessary to comply with the expression of limits in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code. Pollutants already compliant with these rules or that have an approved impracticability demonstration, are excluded from this evaluation including water-quality based effluent limitations for phosphorus, temperature, and pH, among other parameters. Mass limitations are not subject to the limit expression requirements if concentrations limits are given.

Method for calculation:

Industry:

The methods for calculating limitations for industrial discharges to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(4), Wis. Adm. Code, as follows:

1. Whenever a daily maximum limitation is determined necessary to protect water quality, a monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.
2. Whenever a weekly average limitation is determined necessary to protect water quality:
 - A monthly average limitation shall also be included in the permit and set equal to the weekly average limit unless a more restrictive limit is already determined necessary to protect water quality.
 - Residual chlorine – A monthly average residual chlorine limit equal to the weekly average limit of 7.3 µg/L is recommended. The weekly average limit based on the chronic toxicity criteria is less restrictive than the current daily limit.
 - Copper – A monthly average copper limit equal to the weekly average limit of 36 µg/L is recommended.

- A daily maximum limitation shall also be included in the permit and set equal to the daily maximum WQBEL calculated under s. NR 106.06 or a daily maximum limitation calculated using the following procedure, whichever is more restrictive:

$$\text{Daily Maximum Limitation} = \text{WQBEL} \times \text{DMF}$$

Where:

DMF = Daily Multiplication Factor as defined in Table 2

CV = coefficient of variation (CV) as calculated in s. NR 106.07(5m)
= 0.6 for < 10 data points

s. NR 106.07 (4) (e). Table 2 — Daily Multiplication Factor

CV	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
DMF	1.114	1.235	1.359	1.460	1.557	1.639	1.712	1.764	1.802	1.828

CV	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0
DMF	1.842	1.849	1.851	1.843	1.830	1.815	1.801	1.781	1.751	1.744

3. Whenever a monthly average limitation is determined necessary to protect water quality, a daily maximum limit shall be calculated using the following procedure and included in the permit unless a more restrictive limit is already determined necessary to protect water quality:

$$\text{Daily Maximum Limit} = (\text{Monthly Average Limitation} \times \text{MF})$$

Where:

MF= Multiplication factor as defined in Table 1

CV= coefficient of variation (CV) as calculated in s. NR 106.07(5m)
= 0.6 for < 10 data points

n= the number of samples per month required in the permit

s. NR 106.07 (3) (e) 4. Table 1 — Multiplication Factor (for CV = 0.6)

CV	n=1	n=2	n=3	n=4	n=8	n=12	n=16	n=20	n=24	n=30
0.6	1.00	1.31	1.51	1.64	1.95	2.12	2.23	2.30	2.36	2.43

Note: This methodology is based on the *Technical Support Document for Water Quality-based Toxics Control* (March 1991). PB91-127415.

Summary of Additional Limitations:

In conclusion, the following additional limitations are required to comply with ss. NR 106.07 and NR 205.065(7) Expression of Limits.

Parameter	Daily Maximum	Weekly Average	Monthly Average	Multiplication Factor (CV)	Assumed Monitoring Frequency (n)
Residual chlorine	38 µg/L	7.3 µg/L	7.3 µg/L		
Copper	67 µg/L	36 µg/L	36 µg/L		
Arsenic	13 µg/L		13 µg/L	1.0 (0.6)	Single sample (1)

PART 9 – ADDITIVE REVIEW

Unlike the metals and toxic substances evaluated in Part 2, most additives have not undergone the amount of toxicity testing needed to calculate water quality criteria. Instead, in cases where the minimum data requirements necessary to calculate a WQC are not met, a secondary value can be used to regulate the substance, according to s. NR 105.05, Wis. Adm. Code. Whenever an additive is discharged directly into a surface water without receiving treatment or an additive is used in the treatment process and is not expected to be removed before discharge, a review of the additive is needed. Secondary values should be derived according to s. NR 105.05, Wis. Adm. Code. Guidance related to conducting an additive review can be found in *Water Quality Review Procedures for Additives* (2019) (<http://dnr.wi.gov/topic/wastewater/Guidance.html>).

Additive Name	Manufacturer	Purpose of Additive including where added	Intermittent or Continuous Feed	Frequency of Use		Estimated Effluent Concentration mg/L (reported in permit application)	Not to Exceed Effluent Concentration mg/L		Is Additive Authorized
				Months per/yr.	Days/ week		Acute	Chronic	
CL41	ChemTreat	microbiocide (sodium bromide)	Continuous	12	7	Below detection	588.46	32.69	Yes
San-I-King No. 451 ²	ChemTreat	microbiocide (bleach, sodium hypochlorite)	Continuous	12	7	Below detection	-	-	Yes
MBS 7330 Solution ²	Hydrite	dechlorination (bisulfite)	Continuous	12	7		-	-	Yes
FlexPro Plus CL5684 ¹	ChemTreat	Can sheen	Continuous	12	7	60 mg/L in process	358.85	30.96	Yes
CL4354 ¹	ChemTreat	Can sheen (being phased out)	Dis-continued ³	12	7	50 mg/L in process	68.05	3.78	No

1. Calculated based on toxicity data provided.
2. Evaluation is not necessary for additives that have active ingredients consisting only of chlorine, caustic soda (sodium hydroxide), hypochlorite, sulfuric acid, hydrochloric acid.
3. In email correspondence received by the Department on 3/10/2020, the facility stated they would not be using "CL4354 going forward".

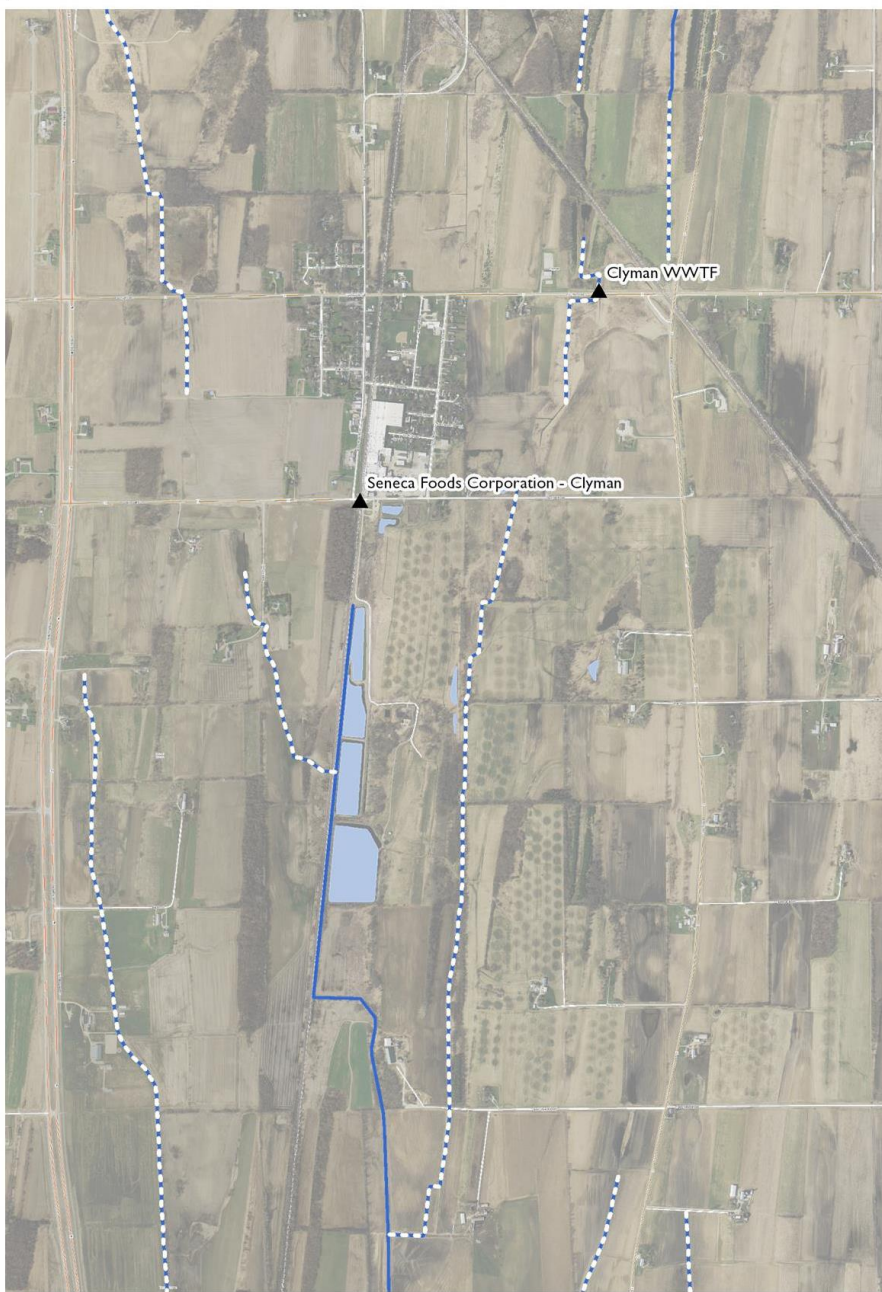
The use of ChemTreat FlexPro Plus CL5684 has been approved at the requested dosage rate of 45 mg/L / 103 lbs/day. The Department determined that, since the additive is added prior to treatment, the concentration is expected to be less than the secondary chronic value at the outfall location. Furthermore, since acute WET tests are required once annually, and chronic WET tests are required twice annually, sufficient monitoring is in place to assess toxicity.

WET testing should be conducted when additives are used.

Site Map



Seneca Foods Corporation - Clyman



Legend

- ▲ Surface Water Outfalls
- Municipality
- State Boundaries
- County Boundaries
- Major Roads**
 - Interstate Highway
 - State Highway
 - US Highway
- County and Local Roads**
 - County HWY
 - Local Road
- Railroads
- Tribal Lands
- Rivers and Streams
- Intermittent Streams
- Lakes and Open water
- Index to EN_Image_Basemap_Leaf_Off

0.8 0 0.38 0.8 Miles

1:23,760

NAD_1983_HARN_Wisconsin_TM

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Notes

Outfall 001 discharges to Clyman Creek.
Not to scale.

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

Facility: Seneca Foods Corp - Clyman	7-Q₁₀: 0.00 cfs	Temp Dates	Flow Dates
Outfall(s): 001	Dilution: 100%	Start: 07/20/15	07/01/15
Date Prepared: 12/07/2019	f: 0	End: 10/31/19	10/31/19
Design Flow (Q_e): 0.238 MGD	Stream type: Small warm water sport or forage fish co		
Storm Sewer Dist. 0 ft	Q_s:Q_e ratio: 0.0 :1		
	Calculation Needed? YES		

Month	Water Quality Criteria			Receiving Water Flow Rate (Q _s) (cfs)	Representative Highest Effluent Flow Rate (Q _e)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	T _a (default)	Sub-Lethal WQC	Acute WQC		7-day Rolling Average (Q _{esl})	Daily Maximum Flow Rate (Q _{ea})		Weekly Average	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)		(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)
JAN	33	49	76	0.00	0.004	0.006	0	64	67	49	76
FEB	34	50	76	0.00	0.007	0.016	0	49	56	50	76
MAR	38	52	77	0.00	0.006	0.015	0	48	49	52	77
APR	48	55	79	0.00	0.016	0.059	0	56	58	55	79
MAY	58	65	82	0.00	0.010	0.033	0	56	62	65	82
JUN	66	76	84	0.00	0.015	0.096	0	64	67	76	84
JUL	69	81	85	0.00	0.202	0.337	0	113	116	81	85
AUG	67	81	84	0.00	0.385	0.629	0	108	129	81	84
SEP	60	73	82	0.00	0.334	0.445	0	106	118	73	82
OCT	50	61	80	0.00	0.351	0.550	0	106	118	61	80
NOV	40	49	77	0.00	0.212	0.273	0	106	109	49	77
DEC	35	49	76	0.00	0.146	0.227	0	80	93	49	76